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Having separated as completely as possible from the cane-juice those substances which are liable to produce mischief, both by preventing the successful performance of the succeeding operations, and by the injurious effects which their presence produces on the sugar, we next proceed to evaporate a large proportion of its water, and reduce it to the state of a syrup.

At the present time the liquor, on leaving the clarifier, passes at once to the coppers, where renewed defecation, evaporation, and concentration of the syrup into sugar, are carried on simultaneously.

These coppers are segments of hollow spheres; they are five in number; are all arranged on the same plane, and are acted upon by one fire.

When this plan was originally introduced into the West Indies is unknown, but it appears to have been in use in India from the earliest period.

That three operations so very important as defecation, evaporation, and concentration, should be performed at the same time and in the same vessels, without serious injury arising in one or other of the processes, a little reflection would show to be impossible, and experience has proved that it is so.

* Continued from October and November Nos., and *Concluded*. For Dr. Evans' method of ascertaining the quantity of sugar contained in saccharine liquids, see November No. Review, page 375, Vol. VI.; and for a description of the Saccharometer, etc., etc., see the elegant article of our friend, J. P. Benjamin, in Vol. V. For other information upon sugar, consult the six volumes of Commercial Review, now published—the most extensive repository of such information in this or any other country. They can be had at our office.—Ed.

That this plan has been continued up to the present time is not the fault of the planter. Until recently the introduction of fine sugars into this country was virtually prohibited by the extraordinary differential duties attached to them. The planter, consequently, sought to obtain, by the cheapest means in his power, the largest possible quantity of an article best suited to give him a money return for his labors. Thus the sugar manufacture in the colonies was restricted to the obtaining from cane-juice a semi-crystallized concrete, which we recognise in Muscovado sugar.

Under such circumstances, it is not surprising to find old authors rapturously extolling a plan which, whatever might be its imperfections as a means of obtaining a thoroughly good product, allowed, as was then imagined, the planter to produce such a one at least as his position exclusively permitted, with economy, with little trouble, and without the exercise of much manufacturing skill.

A knowledge of what really occurs when cane-juice and syrups are evaporated and concentrated in this manner, might lead to a doubt whether economy either in time, labor, fuel, or money, is effected thereby; indeed it is now generally acknowledged, that not only is this plan unfitted for the manufacture of a superior quality of sugar, but that the objects which alone admitted of its defence are attained far less completely than its admirers imagined. For the form of the pans, their globular bottoms, and the distances which exist between them, cause them to present a comparatively small effectively heating surface; whereas the mass of masonry, in the shape of copper walls, arches, &c., instead of being kept as cool as possible, offer even a larger amount of surface for the absorption of the caloric than the vessels which it is intended to heat.

That this system can be continued, except at a great sacrifice, cannot be disputed; we should therefore attempt by every means in our power to remedy its defects. The object that I have principally had in view throughout these pages has been to obtain improved results, by inculcating a knowledge of correct principles, rather than by the recommendation of new and expensive machinery. Pursuing the same design, we will now extend our inquiries as to the best way that amelioration of this part of the process can be attained at the smallest cost, and with the least disturbance of the present plan.

The manufacture of sugar comprises three operations, namely, defecation, evaporation, and concentration, which are so distinct from each other, both in the mode required to perform them, and the objects to be attained by them, that their separation is indispensable.

Evaporation has for its object the concentration of cane-juice to the consistency of a syrup of that degree of density best suited to the process which it has afterwards to undergo. Thus, if the syrup is to be filtered through animal charcoal previously to its concentration into sugar, the density which is best suited for this purpose is 27° or 28° Beaumé; but if this operation is not to be performed, the evaporation may be prolonged until the syrup has acquired a density of 30° or 32°.

Evaporation of cane-juice is best performed by ebullition at the ordinary atmospheric pressure. That degree of heat, at this stage, during which the sugar is largely diluted, when judiciously applied, so that the syrup may not be exposed to it longer than is absolutely necessary, is always beneficial, and often essentially necessary; for, otherwise, a larger portion of the nitrogenized matters, which have not been entirely removed, would be retained, and the crystallization of the sugar would be less complete.

The means required to effect these purposes, it is obvious, are of very great simplicity, and may be attained as follows:—

1st. By retaining the present plant, the teache being taken away, and the fire made under the second copper. In this case the four coppers constitute the evaporating apparatus, and are to be employed for that purpose exclusively. The cane-juice, after defecation, is passed into the one most distant from the fire, and successively into the others, where it is to be skimmed and ladled, as at present, until it shall have attained, on arrival at the last, the density required, when it must be skipped either into charcoal filters, into a cistern placed for its reception, or into the concentrating vessel, as will be described presently.

This arrangement would be a very great improvement upon the present plan, and it may be obtained without much alteration in the plant, or without any outlay of money beyond that which is now required for keeping the copper walls in order; nevertheless it is in many respects still very imperfect. 1st. It requires the use of megass as fuel, in consequence of the distance which the flame has to pass over. 2d. It requires a larger quantity of fuel than is necessary to produce the amount of evaporation demanded. And 3d. It requires the labor of four men to ladle the liquor from copper to copper.

These, I think, are reasons sufficiently satisfactory for advising the introduction of some other system, whereby those expenses would, in a great measure, be spared. I am, however, too well aware of the unhappy condition of the colonies to expect that, for the present at least, any improvement which requires even a small outlay of money to effect, will be generally adopted, if the same results, though at a greater cost, can be obtained by means which every estate now possesses.

2d. The next alteration in the plant which I propose, consists in substituting for the present coppers a large flat-bottomed vessel, made of cast-iron or copper, of an oblong shape, with the angles rounded off, to protect them from the action of the fire. It should be divided in the centre into two equal compartments, by a metal plate containing a valve, by means of which the liquor may be passed from one into the other when required.

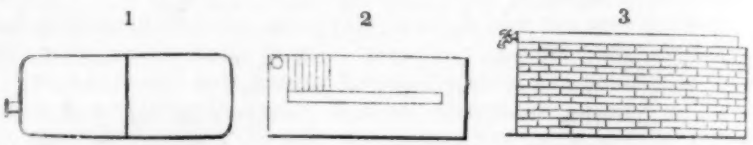
It must be hung in such a manner, that the flame may come in contact with every part of the bottom, but be prevented from touching the sides.

The dimensions of the vessel will depend upon the work to be performed by it. On an estate having three clarifiers of 300 gallons,

each of which can be filled by the mill, and the juice boiled and filtered in three quarters of an hour, the size required for the evaporating pan would be fourteen feet in length, seven feet in width, and eighteen inches in depth. Two such would be necessary.

When set, the pan should be surrounded by a sloping border of lead, in the same way as the present coppers, to admit of the rise of the liquor during ebullition. The separation between the compartments should be of the same elevation as the pan itself, so that the contents of one side may readily overflow into the other. The skimmings are to be taken away when necessary, but as no ladling is required, one man would be sufficient to perform all the duties required by it. A large cock should be attached to one extremity, by which the syrup may be drawn off when sufficiently concentrated.

The vessel should never be completely emptied, except at the close of the day. Generally, the quantity taken away each time will be equal to the contents of the clarifier, less the water lost by evaporation. To effect this when the juice is at 10° Beaume, the rate of evaporation must be about 200 gallons, and the quantity of syrup obtained in consequence, 100 gallons at 27° every three quarters of an hour.

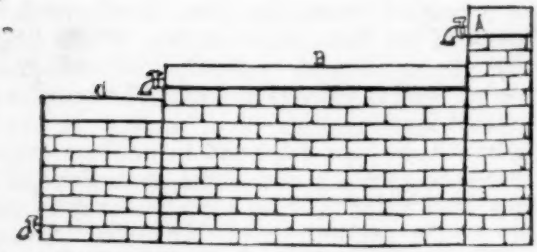


The above diagram will enable us to understand the pan more accurately than we could do, probably, by description only. 1. The outline of the pan. 2. The furnace on which it is hung. 3. The pan set in mason work.

3d. The evaporating vessels may be, if it should be thought preferable, arranged in another manner. Should this plan be adopted, the apparatus will consist of two flat-bottomed vessels, either of iron or copper, (in the latter case the bottom should be made to curve inwards.) In shape they should approach a square, the angles being rounded off; and, instead of being hung upon the same plane, the upper edge of the lower one should be on the same elevation as the bottom of the one above. They should be so set, that the fire applied to the lower one will serve to heat the upper one also.

Their size should correspond with the work to be performed by them; and, supposing it to be the same as that given in the preceding plan, the upper vessel would require to be, at least, twelve feet long, eight feet wide, and eighteen inches deep; the lower one, nine feet long, eight feet wide, and eighteen inches deep.

The clarified cane-juice is to be received by the upper vessel, and after undergoing a certain degree of evaporation, is to be transmitted to the lower one by means of a cock.



A. The cock admitting the defecated cane-juice into the upper evaporator, B.
C. The lower evaporator, with its discharging cock.

Gay Lussac has remarked, that liquids are more easily converted into vapour, when in contact with uneven and angular surfaces, than when these are smooth and polished. Evaporation may be greatly promoted, also, by increasing the extent of the heating surface of the vessel in which it is carried on.

These facts have been taken advantage of in the arts, and evaporating vessels are now frequently made with their bottoms corrugated, which, by increasing the heating surface, augments likewise their evaporating powers. A patent was taken out two or three years ago for producing a similar effect, by extending from the outside of the bottoms of pans, a great number of metallic studs or projections about two and a-half or three inches long.

The evaporating properties of every vessel may be greatly increased by these contrivances. I therefore think that more attention should be bestowed upon them by planters in general than what has hitherto been done.

It has been found that the material of which the evaporating vessel is composed, influences the temperature at which ebullition takes place. When a glass vessel is coated inside with a thin film of shellac, the temperature of water boiling within it has been observed at 220°, or even higher. This teaches us the necessity of keeping the bottoms of the evaporating vessels clean, and free from those deposits so frequently found adhering to the inside of the coppers.

Steam has within the last few years been extensively employed on the continent as the heating medium for evaporating the defecated juice of the beet-root; indeed, it is now the one almost exclusively employed in those countries, in all the operations of this manufacture in which the action of heat is required.

The kinds of apparatus which have been constructed for the employment of steam, as the agent for procuring heat, have been so various as not even to admit of their enumeration. They may, however, be divided into those which consist of shallow vessels with double bottoms, into the space between which the steam is admitted, and into others which are deeper, and in which a copper steam pipe is introduced in the form of a coil or spiral.

The evaporation which takes place in these vessels is often extremely rapid, and there can be no doubt, that in other respects

they present a marked superiority over those vessels which are heated by means of the direct action of fire. These advantages, as far as regards the process of evaporation of cane-juice from its ordinary density, until it assumes the state of a syrup at 27° or 28° Beaumé, we must inquire into.

Whatever be the medium employed to produce evaporation by ebullition at the ordinary pressure of the atmosphere, it is evident, that the liquid acted upon, must in every case rise to the temperature necessary for the performance of this action. Steam offers no exception to the rule; but it enables us to effect ebullition in liquids with great rapidity, and, at the same time, with less liability to burning than can be performed over the naked fire; because it admits of the heating surface being increased to almost any extent, and of its being at the same time immersed in the fluid to be heated.

Steam is very manageable, and admits of the *amount* of caloric applied to the liquids being regulated at pleasure, so that in the case before us the heat may be instantly withdrawn, and the evaporating vessel be converted at once into a simple cistern, when we require to empty it of the syrup.

These advantages, offered by the use of steam, as a means of effecting the evaporation of cane-juice, are certainly very great; and, on a large estate, requiring a new plant for the boiling-house, its introduction would, no doubt, in many respects be very beneficial. But whether it can be introduced with real advantage into a boiling-house already erected, in which the plant is in perfect order, and where the estate does not produce annually 400 tons of sugar, is less certain.

In the first place the removal of the present plant, and the substitution of another upon the above principle, would be attended with a very considerable outlay of capital; in the second, such a change is not absolutely demanded, for the results obtained in the processes of defecation and evaporation over the naked fire, may, with an ordinary degree of care and watchfulness, be equally satisfactory; and lastly, the only decided advantage possessed by this method, is the entire removal of the heat from the pan when required, without the trouble and annoyance of damping or drawing the fire. A very great advantage certainly; but will it compensate the capital invested for its attainment?

Although the employment of steam possesses all the above advantages, it is far from being so economical a method of producing evaporation as the open fire. How well soever an apparatus on this principle may be constructed, the loss of caloric will be considerable, and the consumption of fuel will be proportionately great. This is a serious drawback to the recommendation of steam, for, coupled with the additional expense of the plan, it will go far to neutralize its advantages. On those estates, however, where the vacuum pan is used for concentrating the syrups, that is, where steam is already in use, its extension to the other processes of the manufacture might be effected at so small an increase of expense as to render it profitable.

Whatever be the means employed to evaporate the defecated liquor, expedition is urgently demanded, for the shorter the time that it is subjected to the boiling temperature, the less will be the risk of any of the catalytic decompositions being induced.

Cleanliness in this, as in all the processes, should be strictly observed.

The scum, as it arises in thin, insulated films, should be removed and thrown back into the clarifier, as the syrup which it retains is too pure to be converted with profit into rum.

Having, by the foregoing operations, succeeded in obtaining a pure and well defecated syrup of the required density, the colonial sugar-maker has arrived at that stage of his operations which corresponds with the first steps taken by the refiner in Europe; and from this point these two branches of industry ought to be considered identical. The former, however, is in a position of much less difficulty and embarrassment than the latter, for he has the power of exercising a discretionary opinion as to the extent to which the succeeding operations may be carried on, or whether it be to his interest to adopt them or not. He has obtained, if his efforts have been successful, a bright transparent syrup of the color of pale sherry, capable of granulating with facility on due concentration, and of forming a fine canary-colored Muscovado sugar. It is simply a matter of economy, whether this is to be the object sought to be attained, or whether, by the application of additional care, pains, and labor, his profits may not be more than proportionately increased by the superiority of the result obtained.

In the first case, he will at once proceed to the operation shortly to be described, that of concentration; in the second, he will follow the example of the refiner one step at least in his business, namely, in the filtration of the syrup through a bed of animal charcoal.

The application of the fact, that *vegetable* charcoal possesses the property of discharging color from syrups, to the purposes of art, was one of the greatest modifications that had taken place in the refining of sugars up to the period of its introduction in 1805.

In the year 1811, it was discovered that *animal* charcoal possessed the same power in a considerably greater degree, while its employment was not attended with many serious evils, which were found to accompany that of the former.

M. Derosne was, I believe, the first who caused the introduction of animal charcoal into the refineries of France. Some short time afterwards it was introduced into those of this country.

The mode of employing this substance at first was as follows:—The Muscovado sugar was dissolved in boiling water, in such proportions as to form a solution of about 30° Beaumé; the animal charcoal, in the state of a very fine powder, was then added, and the whole was mixed together by means of an oar. A quantity of bullock's blood was afterwards thrown in, the stirring being continued. The mixture was allowed to boil for a second or two, and then filtered through a blanket and basket, until the introduction of the bag filters, when the latter were universally substituted for that rude and imperfect method.

Some years ago M. Dumont, being struck with the great augmentation of power which animal charcoal presents when employed as a filtering agent, and when syrups were allowed to percolate through layers or beds of it, after many efforts, succeeded in constructing filters on this principle, which have since been in general use, and which bear his name.

However employed, the action of animal charcoal upon impure syrup is in the highest degree extraordinary, and has never as yet been satisfactorily explained.

The object sought on the first introduction of this substance into the refineries in France was that of discharging color merely; but on being used for this purpose in the factories of beet-root sugar, it was quickly perceived that it possessed other properties equally important, and not less beneficial. Syrups treated by it were rendered crystallizable, which before, from their viscid character, had no disposition to granulate. Others that were slightly acid became neutral; and those containing an excess of lime had this excess removed.

It was afterwards discovered that many of the bitter and aromatic principles of vegetables were destroyed, when infusions prepared from those substances were filtered through beds of animal charcoal. Latterly the experiments of Dr. Garrod have shown that animal charcoal possesses still more wonderful properties—that it is, in fact, an antidote to some of the most virulent poisons of the animal and vegetable kingdom, as prussic acid, strychnine, aconitine, &c. That gentleman has shown that when solutions of any of the alcoloids are mixed with washed, or purified animal charcoal, in the proportions of half a grain of the former to half an ounce of the latter, the filtered liquid possesses no poisonous property whatever. Vegetable charcoal produced very little, and lamp-black no effect whatever, in this respect.

The manner in which the animal charcoal acts in the production of these results is quite incomprehensible. Its chemical characteristics seem to be unchanged, nothing appears to have been added to it in chemical combination, nor does anything seem to have been abstracted, except those powers themselves, which are, however, restored, either by fermentation or by re-burning.

If we look to its chemical composition for a solution of the effects produced, we receive no information, for it consists of charcoal 10; phosphate of lime and carbonate of lime, 88; silica and iron, in the state of an oxide, 2.

Many other bodies, as chlorine, sulphurous acid, alumina, &c., have the power of destroying certain organic coloring matters; but none of them can discharge that color from syrup which is induced by its continued exposure to a high temperature: animal charcoal being the only agent at present known possessing this property.

The beneficial results obtained by the action of animal charcoal on the syrup obtained from cane-juice, are—1st. Decoloration, which extends both to the sugar and molasses. 2d. Abstraction of any excess of lime which it may contain. 3d. The neutralization of any free acid. 4th. The removal of nitrogenized matters. 5th.

The amelioration of that viscid condition which inspissated cane-juice frequently presents. 6th. The promotion of granulation.

It follows, therefore, that the employment of animal charcoal enables us to obtain a larger amount of sugar, and a great improvement in its quality. The molasses, also in consequence of the lightness of their color and their freeness from viscidity, are, when the syrup from which they were produced has been thus treated, fitted to yield in their turn a very superior quality of Muscovado sugar.

It is, however, on the syrups obtained from the beet-root that the action of animal charcoal is the most decided, and the benefits resulting from its use most clearly evinced. Indeed, it may be doubted whether, deprived of the assistance rendered by this substance, that branch of industry could be pursued with profit.

There has been no such urgent necessity for its employment in the colonial boiling-houses, which, coupled with the expense attendant upon its introduction, has caused its perhaps unmerited neglect there. But if it can be employed with economy and great benefit in the refineries in Europe, is is surely worth inquiry how far the same results may be obtained in the colonies.

Were animal charcoal extensively employed throughout the West Indies, a new branch of industry must necessarily accompany it; namely, that of its manufacture and re-burning. There would be no difficulties met with in this respect.

There are certain varieties of charcoal, which, so far as regards the decoloration of syrups, possess powers scarcely inferior to bone black. Of these, the one which results from the destructive distillation of bituminous shale is pre-eminent. I have made many experiments with this variety of charcoal on syrups of different kinds, and have invariably succeeded in improving their color to a very considerable degree; but it is said not to possess to an equal extent the property of separating the lime and albuminous principles. Such, it is probable, is the case, and the benefit derived from its employment in the manufacture of beet-root sugar would therefore be limited; but as the syrups from well-defecated cane-juice contain those substances in very minute quantities, these objections may not be equally applicable to them. The properties of this substance are improved by re-burning, and its price would not exceed the fourth of that of animal charcoal.

The asphalte of Trinidad, submitted to destructive distillation, affords an excellent charcoal, which there is every reason to believe possesses considerable powers in discharging color from syrup.

Although vegetable charcoal in its ordinary state is of little value as an agent for bleaching saccharine liquids, its powers in this respect may be considerably augmented by proper management.

Let 30 lbs. of it, reduced to a fine powder, and then washed carefully in water, slightly acidulated with muriatic acid, and afterwards with pure water, be mixed with 70 lbs. of clay, in the form of a paste, and the whole be set by to dry; then let it be broken into small pieces, and calcined in a close iron vessel at a white heat for two hours. On its withdrawal it must be received in covered iron

boxes out of the contact of the air, or instantly cooled with aspersions of cold water, and reduced into a coarse powder. This forms an excellent substitute for animal charcoal, as it possesses considerable discolorating powers.

There is also another preparation which answers this purpose tolerably well. Take 100 parts of clay, prepared as above, 40 parts of tar, and 500 parts of common coal bruised very small; blend the whole into an uniform mass, dry in the sun, break it into pieces, and calcine in a retort.

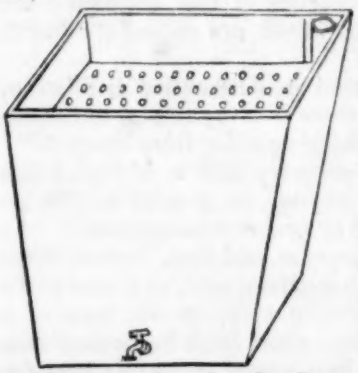
Both the above preparations can be employed in the way of filtration only.

Their powers, when enervated or destroyed, may be renewed by reburning.

The advantages derived from the use of animal charcoal in boiling-houses of the West Indies, were they confined to the discharging of the colour from the syrups merely, would be so considerable, from the increased value of the products, that it is surprising its introduction has been on so limited a scale. Its great price as an article of commerce, and the labour and trouble entailed by its repeated calcinations, have operated, it must be admitted, as powerful reasons against its more general employment.

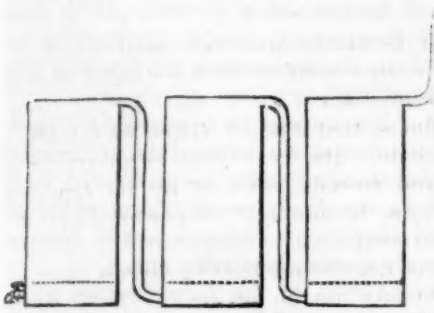
If, after due evaporation, it is decided to pass the syrup through charcoal, one of the following plans may be pursued:

Dumont's filter consists of a quadrangular pyramidal vessel, made of wood, the base being uppermost. It has a double bottom, the upper one being composed of a piece of basket-work, or a perforated metal plate. In the space between the two is inserted a cock, and a metal tube which rises to the same elevation as the vessel itself, also communicates with this part of the apparatus. Upon the perforated false bottom a piece of flannel is spread, on which the animal charcoal, reduced to the state of a coarse powder, or in grains, and moistened with a little water, is carefully and evenly spread, until about two-thirds of the vessel is filled with it. Over the charcoal is placed a perforated cover or a piece of basket-work, and the filter is fit for use.



The hot syrup is now poured in, and allowed to percolate slowly through; the air and water being forced onward by the pressure, escape through the tube. On arriving within the space between the true and false bottom, the cock is turned, and the filtered syrup escapes. These vessels are about three feet wide at the top, two feet at the bottom, and about three and a half feet deep. Four such would be required to be in use in a boiling-house, making three hogsheads of sugar per diem. They may be employed for three or four days successively: after that period the charcoal requires to be revivified.

Peyron's filters.—These filters are composed of a series of cylindrical copper vessels, each having a double bottom, as those of Dumont, and being hermetically closed at the top. They are closely packed with animal charcoal, and into the upper part of the first vessel is introduced a pipe for the admission of the syrup, which is made to descend from a sufficient height, or which is forced in by means of a pump in such a manner that, from the pressure employed, it passes rapidly through the charcoal, and is received by the space between the two bottoms. Here it enters another pipe, which conveys it to the upper part of the second filter placed close by. Thus it continues through the whole series, until it is at last drawn off by a cock placed for the purpose in the last vessel.



Each of the cylinders is six feet high, and three feet in diameter. Three of them would be required in a boiling-house making three hogsheads a day. They act well for about five or six days. The charcoal is never removed from them; but when its powers acquire to be restored, boiling water is introduced for the purpose of washing away as much as possible the syrup remaining in the interstices. The sweet liquid which comes away is thrown into the evaporating vessels, while the filters are put into some warm place that fermentation may ensue. It is stated, that this fermentation is completely terminated after twenty-four or thirty-six hours. In this way, the organic matters which had neutralized the decolorating powers of the charcoal are destroyed; and to restore its properties nothing now is required but an effective washing. This is best performed by the injection of high pressure steam for half an hour; when steam is not used in the boiling-house, hot water must be passed through in a continued stream until it comes away clear and limpid.

These filters have answered their purpose very well both on the continent and in London; but strange to say, they exert little action upon syrups obtained from the beet-root. They appear, however, to be well suited for the colonies.

The simplest, and certainly not the worst kind of charcoal filter, is one that can be made in a moment on any estate. Take a clean rum puncheon, and at the distance of two or three inches from the bottom, make a support sufficient to retain a piece of basket-work, corresponding in size to that part of the cask. Into the space between this and the bottom affix a cock. Fill the cask up to about two-thirds of its height with charcoal, carefully, so as to avoid all inequalities of surface, and cover it with another and similar piece of basket-work. The filter is now prepared. Introduce the hot syrup gradually and cautiously until the puncheon is entirely full; let it remain in contact for two hours, and then turn the cock. The first portion of syrup that comes away will contain minute

particles of charcoal; it should therefore be returned to the evaporating vessels.

Four puncheons, so arranged, would be required in an ordinary boiliug-house. The other filtering substances described above answer very well when used in this way.

By the performance of the before-mentioned operations on the cane-juice, a syrup will have been produced. This syrup may or may not have been filtered through animal charcoal. In the first case its density will be 27° or 28° Beaumé, being the degree best suited for that purpose; the relative amount of its constituents will be 50 parts of sugar and 50 parts of water in 100, and the temperature of its boiling point will be 219° or 220° Fahr. In the second case the density of the syrup will be somewhat greater, and it may conveniently be stated at 32° Beaumé; then the amounts of its sugar and water will be as 60 of the former to 40 of the latter in 100 parts, and its boiling point will be 224°.

Syrups having these degrees of density may be exposed for a short time to a temperature equal to the one above, without the occurrence of much injury; but if the period of its exposure be protracted, or if its temperature be augmented (a necessary consequence of its increasing density by a continued ebullition), changes in the composition of the sugar will, as formerly shown, inevitably ensue.

These changes will be produced even in the purest syrups when thus treated, but they take place more rapidly, and exist to a greater extent when the syrup holds in solution those organic and saline substances which are found in cane-juice.

For this reason the process described as *evaporation* should now cease, and should be replaced by another for the purpose of continuing the inspissation of the syrup to a point somewhat beyond that of its perfect saturation when boiling. Although this operation cannot be effected without evaporation, it demands the application of some plan by which it may be performed with the smallest possible risk of the occurrence of those changes which are so liable to result from a high temperature.

We have already seen that sugar is soluble in $\frac{1}{2}$ its weight of cold, and in $\frac{1}{5}$ of its weight of boiling water; consequently boiling syrup, when thoroughly saturated, must deposit on cooling, $\frac{3}{5}$ of its sugar, the remaining $\frac{2}{5}$ being held in solution by the water. In other words, a boiling syrup, composed of 5 lbs. of sugar, and 1 lb. of water, will, when it becomes cold, have deposited in the form of crystals 3 lbs. of solid sugar, the other 2 lbs. being dissolved in the 1 lb. of water, thus constituting 3 lbs. of mother liquor or molasses.

The temperature required for the ebullition of a syrup, consisting of 5 parts of sugar and 1 part of water, varies according to its purity from 238° to 239° Fahr. But as it is desirable in sugar-making to carry the evaporation somewhat beyond the point of saturation, the temperature of the boiling syrup, when of the density usually required, is 240° or 242°, and occasionally somewhat higher.

Syrup cannot be submitted to this temperature without sustaining injury.

If we take a quantity of sugar in the state called crushed lumps,

which is one of almost entire purity, and after dissolving it in an equal weight of water so as to form a syrup, submit it to evaporation in a flat-bottomed copper pan over a naked fire, using the greatest care that the bottom of the pan alone be exposed to the fire, we shall perceive that little change takes place in its appearance at first, but in a short time, as the liquor approaches its granulating point, it gradually acquires a yellowish tint, which becomes deeper, and assumes a reddish color as the process continues. The same results are observed if, instead of an open fire, high pressure steam be employed to effect the evaporation. In neither case, it is probable, has the temperature of the liquid exceeded 240°.

In the *Journal de Pharmacie* for 1842 will be found an account of some most interesting experiments made by M. Soubieran, to illustrate the effect of heat on saccharine liquids. That gentleman exposed syrups to the action of heat in an apparatus so constructed, that as evaporation went forward the water was returned to the sugar almost as soon as it was separated, and the uniform density of the liquid was consequently preserved. The changes produced in the sugar were tested by means of the polariscope, and the following results were observed :—

Syrup, primitive rotation	+68°
" after 18 hours	+54
" " 48 "	+20
" " 90 "	— 7
" " 114 "	—16
" " 138 "	— 6

The syrup now became black and acid. It held suspended in it, and also deposited as a precipitate, a dark brown or black powder. The sugar was entirely decomposed. In another experiment the results were :—

Syrup, primitive rotation	+71°
" after 18 hours	— 8
" " 36 "	—15

The effects in this experiment were much more rapid, as the syrup was exposed to the heat of boiling muriate of lime.

There is no necessity for presenting to the reader a detail of all the experiments performed. It will be sufficient to state, that each of them showed a result corresponding with the above.

These results consisted, 1st. In the gradual disappearance of the cane-sugar. 2d. In its being replaced by the glucose or the sugar of fruits. 3d. In the production of a black carbonaceous powder, and formic and acetic acids.

It was also shown, that these changes were prompt in direct ratio to the degree of heat which the syrup attained, and to the state of concentration of the latter.

The presence of lime in pure syrup retarded the changes; but if only a very small quantity of glucose was found combined in the syrup, lime, on the other hand, tended rather to hasten them.

M. Soubieran next inquired whether these changes took place during the process of refining Muscovado sugar. With this purpose

he visited an establishment in the neighborhood of Paris, in which the syrups were concentrated at a low temperature (*in vacuo*). He then discovered, that by this treatment the syrup underwent no change, and that the glucose originally contained in the Muscovado sugar passed entirely into the treacle.

Another evil to be avoided in the concentration of syrups of high density, is that of caramelization or burning. It may be said, that by ordinary care and attention, the risk of producing this effect, even when the operation is carried on in an open vessel exposed to the direct action of the fire, is not great; but those who are acquainted with the mode of concentration practised in the West Indies know that this accident is unavoidable in those boiling-houses in which the common plant is in use.

In studying this branch of our subject, three circumstances must be attended to; namely, the apparatus best suited to perform it, the kind of syrup to be operated upon, and the knowledge or skill of the person operating.

It is of the highest importance, that every process which enters into the art of sugar-making should be well and completely performed; but if there be one among them to which this is more applicable than to another, it is probably that of concentration. Fortunately, this operation has attracted much attention, and the means devised to perform it have consequently been much ameliorated.

As now conducted in the colonies, with very rare exceptions, concentration is merely the last stage of evaporation to which the cane-juice is submitted in the first copper, or, as it is called, the teache. This vessel, like all the others which adjoin it, is in form the segment of a hollow sphere; its upper rim is surrounded by a lip or flanche, by which it is suspended over the furnace below. The mason work into which this flanche is inserted, is constantly in a glowing heat, so that damping or even withdrawing the fire is insufficient to extinguish the intensity of the temperature to which the syrup in this vessel is always exposed.

By such an arrangement, concentration may, it is true, be effected with considerable rapidity, but never without inducing great loss both in the quantity of sugar produced and also in its quality.

The amount of loss from this cause alone it would be difficult to estimate with accuracy; indeed it varies much in the different colonies, but it may with safety be estimated at 10 per cent.

In Barbadoes an attempt has been made to remedy many of the evils arising from the action of intense heat upon the contents of the teache, and with some success. It consists merely in diminishing the size of the vessel, so that by increasing the number of skips in a given time, the syrup, from the shorter time required for its sojourn in the vessel, is less liable to change than it would be were the vessel larger and the skips less frequent.

I have, when speaking of evaporation, shown the necessity of removing the teache from the other coppers, and of entirely separating from each other two operations which cannot be performed simultaneously. I have now merely to add, ***that this is indispensable.***

The colonial sugar-boiler does well in exercising his judgment upon the propriety of adopting or rejecting new schemes, a new plant, or new machinery; but he certainly can have little judgment to exercise, if he continue much longer the present method of concentration in a spherical pan placed over the same fire that heats the other coppers.

It would be useless to enumerate all the evils that thence arise, for they are too well known, and too generally admitted to require it; our time will be better occupied in trying to obviate them by means as simple and at a cost as small as possible.

The first improvement upon the present method, therefore, consists in placing the teache over a separate fire, and in giving it a slight modification of form. In the latter respect, it should be a circular vessel about 45 inches in diameter, and 14 or 15 inches in depth, the bottom of which should be slightly convex, that is, arched upwards; and it may be supplied with a cock for drawing off the syrup when duly concentrated.

The bottom alone should be exposed to the fire; and to accelerate the operation, this part may be corrugated, or studded with metallic knobs, as before described.

The fireplace may also be modified with advantage, and probably such a plan as the one indicated in Mr. Porter's work on sugar, would be found well-suited for the purpose.

By this arrangement, the heat is more equally distributed over the bottom of the pan, in consequence of the products of combustion being obliged to pass through the different openings into the flue, previously to their escape into the chimney.

The teache, so fitted, resembles somewhat the concentrating pan of the refiner of by-gone days. We can by its means modify the heat applied, without interfering with the evaporation going on in the other vessels; and the bottom alone being exposed to the fire, there is much less risk of charring or burning the sugar than in the method now in use.

Some years ago a concentrating vessel of a peculiar shape was much in use in the refineries and sugar-houses in France. From the way in which its contents were evacuated, it was called a *chaudière à bascule*. It was a shallow pan, having a mouth-piece or spout, and resembled in shape somewhat a common coal-scuttle.

It was placed upon, but not fixed into, the mason-work of the furnace; it was, however, attached to it, anteriorly, by means of an iron bolt, in such a manner, that a certain motion was permitted around this point. To the back part was fixed a rope, which passed over a pulley, by which means the vessel could be tilted up, and its contents poured into any receiver.

The furnace on which it was placed resembled in principle the one last described.

The superiority which this pan presents over the former, consists in the facility by which its contents are removed from the action of the fire at the time of skipping. It has never, I believe, been in use in this country; and even in France, where it was once extensively

employed, it has been entirely superseded by more improved inventions.

Steam has been of late very generally used on the continent, as a means of concentrating the syrups from the beet-root by ebullition under ordinary atmospheric pressure.

The various kinds of apparatus that have been constructed on this principle are far too numerous to mention, and the greater number have already fallen almost into oblivion. Those which have best succeeded consisted of pans of different forms, into which the steam was introduced either by a false bottom or by a spiral tube. The latter mode is preferable.

A concentrating vessel on this plan, when well-constructed, evaporates with very great rapidity. Its employment, also, is necessarily unaccompanied either by charring or the production of caramel, from sudden or intense heat; for the heating surface is immersed in the liquid to be heated, and is never of a temperature sufficiently high to produce its immediate decomposition. For these reasons concentrating vessels of this kind have been most strongly recommended.

But we must remember that the temperature is equally as high in syrups which are caused to boil by means of steam, as in those in which this action is produced by immediate contact with the fire, and that in syrup of high density this temperature is sufficient to convert a large portion of the sugar into glucose in a short space of time.

So far as I can learn, the introduction of these vessels into the colonies has not been attended with any considerable success; which, coupled with the want of adequate skill to repair the apparatus when out of order, has operated against their more general employment.

Indeed, an injury to the steam-pipe, sufficient to allow the smallest possible escape of steam of high pressure into the syrup, would be followed by results far more injurious than what daily occur in the common teache from the application of the fire of the furnace.

Should the proprietor of a sugar estate be desirous of using high pressure steam in his boiling-house, it must be better worth his while to do so at once judiciously and effectively, by combining it with the advantages derived from a diminished atmospheric pressure, although at a somewhat greater cost.

I cannot, therefore, recommend this description of teache; for the advantages which it offers over the chaudière à bascule, or even over a well-constructed copper vessel placed upon its own furnace, are not, on the whole, balanced by its greater cost in the first instance, the increased expense attendant upon its application subsequently, and by the additional trouble and labor incurred by its introduction into a boiling-house, for the accomplishment of so partial an object.

By the above methods the concentration of the syrup is effected by an active ebullition, under the entire pressure of the atmosphere, consequently, at a temperature so high, that the operation must be

carried on with great rapidity, otherwise the sugar would receive great injury, although that produced by charring or burning would be obviated.

To prevent the occurrence of the evils arising from a high temperature, Mr. Howard, in the year 1819, took out a patent for concentrating saccharine liquids "*in vacuo*."

It is well-known that liquids boil at a temperature inversely proportionate to the pressure exerted on their surfaces. If we take a Florence flask, containing a little water, and hold it over the flame of a spirit lamp until the water boils, and the steam escapes freely, then suddenly remove the lamp and cork the flask carefully, it will be perceived that the water will cease to boil, but that on plunging the flask suddenly into cold water, ebullition will recommence, and that it will again cease on holding the flask over the lamp. In this experiment the air is driven out of the flask by the steam, which forms an atmosphere of its own in the upper part of it. When the flask is corked and plunged into water the steam is condensed, a vacuum is formed, and the water begins again to boil, because the pressure has been removed from its surface.

Mr. Howard took advantage of this fact, and reduced the experiment to practical utility. For the purpose he had in view he invented an apparatus consisting of a globular copper vessel, enclosed within an iron or copper jacket, and between the two steam was introduced to heat the syrup contained within the former, which was the boiler or concentrator. To this was affixed a tube for the escape of the vapor as it arose, which was condensed by a jet of water, introduced for the purpose. An air-pump was likewise attached to form the vacuum in the first instance, and afterwards to get rid of the condensed vapor.

Many improvements have been added to the original design of Howard, but the principle has always been retained. The essential ameliorations, however, may be confined to two—the heating of the syrup by a long coil of steam-piping, introduced into the interior of the pan, and the condensation of the vapor, and its ultimate escape by means of an extensive metallic worm, kept cool by the continued pouring of an artificial rain.

I cannot enter into a description of all the modifications that this method of concentrating has been made to undergo. That information can be much better supplied by any of the large coppersmiths, who are in the habit of manufacturing the various kinds of apparatus applied to the manufacture of sugar.

Every vacuum pan should be furnished with a thermometer to point out the temperature to which the syrup contained within it is exposed, and a barometer to measure the amount of exhaustion produced in the vessel. It is customary to consider this exhaustion as a force, and to describe its degree by the number of inches that the mercury in the tube rises to, less than would be produced by the pressure of the atmosphere at the time. For instance, if the pressure of the atmosphere be equal to 30 inches, while that within the partially-exhausted concentrator be equal to three inches only, it is

usually said that an amount of vacuum or exhaustion has been obtained equal to 27 inches of mercury, that being the difference of pressure exerted in the respective cases.

There is no mode of concentrating syrups at present known which offers advantages equal to those of the vacuum pan, when well constructed and in good working order. For to a very large heating surface resulting from the steam jacket, and the extent of steam pipe inserted in the interior of the vessel in the manner of a closely packed spiral, is added the greatly increased evaporating power caused by the diminished pressure on the surface of the liquid.

It has been proved that for every $\frac{1}{10}$ of an inch that the barometer rises or falls, there is a corresponding rise or fall of the boiling point of water equal to $\frac{176}{1000}$ of a degree, and consequently that where that fall is equal to 27 inches, the boiling point of water, instead of being at 212°, must be at 164°.5. Under such circumstances a rapid concentration of cane syrup can be effected at a temperature ranging between that point and 180° Fahr., and, as the experiments of M. Soubieran have shown, without the accompaniment of any change in the chemical composition of the sugar.

This plan of concentrating syrup embraces the two conditions essential to the successful performance of the operation, namely, rapidity and a low temperature.

Unfortunately its general adoption—that is, its introduction on every estate, will for ever be impossible, in consequence of the great outlay required for the purchase of the apparatus, the skill required for its management, its liability to get out of order, and the necessity of more efficient workmen for its repairs, than are as yet to be found in the colonies. The first of these objections is not so applicable to large estates as it is to small ones, as they offer a larger scope for getting the return of an adequate interest on the money so invested; and in such a case the others would be overcome by the necessity which would arise of obtaining that knowledge from abroad which is not to be had at home, were there an urgent demand for its supply.

There can be no doubt that, on those estates which, from their extent and the fortunate position of their owners, will admit of the sinking a capital sufficient to obtain the vacuum apparatus, in conjunction with steam defecating and evaporating vessels, and a powerful and well-constructed mill, the ameliorations which would result, both in the quantity and the quality of the products, obtained under a prudent and intelligent management, would fully compensate the expense incurred; but how few are the estates which at the present time are in such fortunate circumstances!

Some years ago Mr. Kneller patented an invention for concentrating saccharine and other liquids. The apparatus consisted of a pan, into which were introduced a number of pipes for the purpose of conveying air into the liquid to be evaporated. The air was forced through the pipes by means of bellows or any other blowing contrivance.

M. Brame Chevalier effected considerable improvements in this plan by substituting high pressure steam for the naked fire as a heat-

ing medium, and hot, or rather dry air, for the cold and humid air of the atmosphere.

This method of concentrating syrup has been in use both in England and in France, although now discontinued in both countries.

The operation was rapid, and the temperature was preserved between 180° and 190°. It is probable that if the vacuum pan had not been known, and in general employment at the time, the introduction of this plan would have met with greater encouragement.

But the results obtained by the latter were not equal to those of the former, whilst its first cost was little inferior, and its working expenses, &c., were quite as great.

Mr. Augustus Gadesden, one of the most intelligent sugar refiners of London, introduced, some months since, to the notice of the West India proprietary body resident in the metropolis, a plan for concentrating syrup at a low temperature over the open fire, and at the ordinary pressure of the atmosphere.

This gentleman's apparatns consists of an iron or copper pan, having nearly the form of the half of a hollow cylinder, in which is placed a drum or wheel adapted to the shape of the vessel, and formed of a number of metal rods, so arranged that the evaporating surface given to the syrup is increased as much as possible. The wheel, half its circumference being immersed in the liquid, is kept constantly revolving; so that by exposing fresh portions of the heated syrup to the action of the atmosphere at each succeeding revolution, the evaporation of the aqueous particles is rendered more rapid than it otherwise would be while the temperature is at the same time in a corresponding degree reduced.

The time required to take off a skip in a pan containing one ton of sugar varies from two and a half to four hours, and the temperature of the syrup varies from 150° to 180°.

From the principles on which this method of concentration are based, it is evident that its successful working will depend upon the degree of dryness of the atmosphere, and on the rapidity with which the air passes over the surface of the syrup. The apparatus should therefore always, when it is practicable, be placed at the windward side of the boiling house, at all events it should be beyond the influence of the vapors which arise from the evaporating vessels.

I used a small concentrating vessel of this description in the island of Madeira. The time required for taking off a strike containing fourteen moulds of fifty pounds each was two hours, and two hours and a half. The results were highly satisfactory; the temperature never exceeded 160°. It has also been in operation during two crops in Berbice, where its success appears to have answered every expectation formed of it. Such, however, has not been the case in the trials made of it in Barbadoes, for accounts from that island state that it occasioned a considerable amount of froth, and that the time occupied in taking off a skip was longer than was contemplated.

In Berbice the pan was worked by an intelligent boiler man sent out from this country for the purpose; in the latter instance its management was intrusted to the sugar boilers of the colony.

The frothing no doubt was owing to the incomplete defecation of the cane-juice, and the non-separation of the whole of the albuminous principles; if so, the addition of a drachm or two of washed butter would in all probability have proved a remedy.

In the prospectus it is stated, that this method of concentration is not intended to supersede the vacuum process, but that it is recommended as a cheap and valuable substitute for it on estates where, owing to its high price, the latter cannot be introduced with advantage.

The great simplicity of its construction and its easy management certainly recommend this pan, if it is found in other respects to answer equally well the purposes proposed.

In whatever vessel the concentration may be performed, it is an operation which always requires considerable skill and ability to conduct properly. It is in this stage of the manufacture that the benefits derived from the careful defecation and evaporation of the cane-juice will be evinced; for the difficulties will be slight, if those operations have been efficiently performed, compared with those which are certain now to arise if negligence or carelessness have been evinced in the antecedent stages.

When concentration is performed at a high temperature, that is, by ebullition under the ordinary atmospheric pressure, whether the heating medium be the naked fire or high pressure steam, our principal object ought to be to arrive at "*proof*" with as little delay as possible. This should likewise be our object when the operation is performed at a much lower temperature; but in the latter case expedition is not of such extreme importance, and we therefore have it in our power to induce crystallization of the sugar simultaneously with the concentration of the syrup.

The term "*proof*" is applied to certain appearances which indicate that the syrup has arrived at the degree of concentration required for the deposition of at least $\frac{3}{5}$ of the quantity of sugar which it contains. It is obvious that these appearances will be modified according to the purity or impurity of the syrup and its stage of concentration.

When the cane-juice is of a healthy character, and when all the preceding operations have been well performed, the following appearances are observed during its concentration in the open pan. The boiling syrup is clear and transparent, it does not mount or rise in foam or froth, the ebullition is quick and sharp, the bubbles succeeding each other with rapidity, and bursting as they arise. As the inspissation advances, the syrup is seen to run from the edge of the skimmer in a thin broad sheet, which separates as if it were cut sharply off with a pair of scissors, and never hangs down in long adhesive strings; it communicates to the eye the sensation of being a sharp, short crispy fluid, possessing little tenacity or viscidity, and the sound of its ebullition communicates to the ear a similar idea.

On taking a very small quantity of syrup as it approaches proof between the forefinger and thumb, and permitting it to remain until sufficiently cool, we shall perceive, on separating these parts from

each other,—1st, that it divides into two small portions or drops, the lower one of which, attached to the thumb, is larger than that adhering to the finger; 2d, that the portions become pretty nearly equal, and their division is effected by a wider separation of the finger and thumb; 3d, on a separation to the extent of half an inch, a slight column of syrup is produced which remains for an instant, and then breaks at its inferior extremity; 4th, a thin thread is produced on a somewhat wider separation, and on breaking the extremity curls up in the form of a hook, and gradually retracts to the portion which remains on the finger; 5th, on a still wider separation, the thread on breaking is so thin as to be scarcely perceptible at its lower end, which is drawn upwards in the form of a cork-screw.

If the concentration be carried a little beyond this point, the thread when broken does not retract upon itself.

The thermometer, as the inspissation proceeds, will indicate a temperature from 236° to 242°; and the proportion of water contained in the syrup will be, in the instances denoted by Nos. 1 and 2, 16 parts in 100, while in the 5th it will be less than 10 parts in 100.

The latter is the highest proof that can with safety be given to syrups by concentration over the fire; in the colonial boiling houses the proportion of water is rarely reduced below 12 per 100.

When concentration is performed at a low temperature, the amount of water may be very much diminished, indeed it may be entirely dissipated, and the sugar may be obtained in a perfectly dry state.

It is not, however, judicious so to do; and the best *point* that the sugar boiler should seek to obtain is that in which the relative amounts of sugar and water are as 90 to 10. In this case the amount of crystallized sugar obtained will be 70 lbs., and that of molasses 30 lbs., in every 100 lbs. It may frequently happen that this point will be too high, and that a better result may be obtained by allowing the concentrated syrup to be a little more *free*.

There appears to be an opinion pretty generally received, that by "*boiling stiff*" at a low temperature, there is considerable economy in fuel, time and labor, and that the extract obtained is greater. This is an error; for in all these respects the results are much the same, whether the operation be a continuous one, or whether it be conducted twice or thrice over.

I mean, that if, after having obtained as much of the sugar as is produced by a primary crystallization of the syrup, we submit the mother liquor which escapes to a second concentration and crystallization, the quantity of fuel will not be increased, the time required for the effective drainage or curing will be shorter, and the labor will be to a very small degree only augmented, whilst the amount of extract will be equally great, and its marketable value will be higher.

There is also another object which the sugar-boiler attempts to obtain while concentrating syrup at a low temperature; namely, the simultaneous production of the crystallization of the sugar. This should always be effected, if possible. For this purpose, the operation should commence upon a comparatively small quantity of syrup. The pan should be filled only to one-third of its capacity, syrup be-

ing slowly added as the evaporation of its water proceeds, until incipient granulation commences, which is known by the appearance of *spark*, that is, the reflection of a ray of light from an incipient granule, exhibited in the syrup when drawn between the finger and thumb.

When *spark* is perceived, a fresh charge of syrup is to be added, and the concentration should be pushed until a portion of the sugar is crystallized.

The supply of syrup should be continued, (but always in small quantities at a time, care being taken that the grain, having once formed, is not re-dissolved,) until the pan is sufficiently full, when the skip must be taken off, should it in the opinion of the boilerman be duly concentrated.

The judicious performance of this operation requires both practice and skill, neither of which can be acquired from any written description.

The foregoing remarks are applicable to cane-syrups of good quality, and which have been properly defecated and evaporated. But how frequently does it happen that syrups are found to have a very different character from the above, and to offer other appearances during their concentration!

Acid Syrups may arise from many causes: 1st, from disease or injury in the canes; 2d, from the incipient souring of the cane-juice; 3d, from the deficient quantity of lime employed in defecation, &c. From whatever cause the acidity may have arisen, syrups of this kind generally want transparency, and their dimness or muddiness increases as the evaporation goes forward. They boil tolerably freely at first, but as their density increases, the ebullition is less brisk, and the color becomes somewhat darker. The latter is more remarkably the case during concentration, when this operation is effected at a high temperature; but if it be conducted *in vacuo*, or by other means which permit of its performance at a temperature of 160° or 170°, the color is little heightened. When this evil exists only in a moderate degree the sugars have a light color, but the grain is small, and they do not cure quickly. The molasses are more abundant than the point to which concentration has been carried would indicate, and their crystallization is often difficult to effect.

The remedy for this condition of the syrup would be the addition of a little lime-water during the evaporating process; but its prevention in the first place, and where that is impracticable, (if it ever be,) the neutralization of the acid in the clarifiers, should be effected.

Alkaline Syrups may be caused by the too abundant addition of lime to the cane-juice, either in the clarifiers or afterwards. When this evil exists in a moderate degree only, the injurious consequences may be confined to the production of too dark a color in the syrup, and in the sugar obtained from it. The grain of sugar produced from such syrup is generally good, and the molasses separate readily.

When the excess of lime has been very great, or when this substance has been employed so as to completely neutralize the cane-juice in which the lactic acid fermentation has commenced, the syrup during concentration will probably present features resembling those which are observed in what may be called—

Saline and Viscid Syrups.—This state of the syrup results from many causes, which have been explained in the first part of the book. Anything, in fact, which causes an unusual excess of the saline constituents in the cane-juice, as their absorption from the soil, or their formation by the addition of lime to neutralize cane-juice which has become sour, or whatever may establish the viscous fermentation in this fluid, must be so regarded. When thus affected, the concentration of the syrup at a high temperature is often impracticable. It is viscid, gummy, and adhesive, running from the ladle or edge of the skimmer in long strings.

Its ebullition is very irregular and very slow; the bubbles seem to traverse half the surface of the liquid before they burst; they appear like large adhesive blisters, which not unfrequently collapse, and for a moment leave the heated mass in a state of repose. I once witnessed a syrup of this kind burst into a flame from the fire under the teache being urged with a hope of expediting the concentration.

The sugars produced are dark, heavy, clammy, and deliquescent. Occasionally their granulation will not take place at all.

Syrups of this kind demand concentration at a low temperature; it is the only means by which can be obtained from them a remunerating quantity of a marketable extract.

Albuminous Syrups.—From imperfect defecation a small quantity of albumen and caseine may remain dissolved in the syrup; and for reasons already explained, this may be caused either by the presence of an acid or an alkali.

Albuminous syrups always produce during their evaporation and concentration a large quantity of froth, which rises faster than the skimmer can take away, and is often the source of considerable annoyance. The addition of a small quantity of butter or sweet oil will generally cause the froth to disappear, as if by magic, and the rest of the operation to go on favorably. The presence of the small quantity of this substance sufficient to effect the purpose is not injurious; on the contrary, it seems to facilitate the process of curing.

It occasionally happens, that after due concentration the syrup, instead of showing a disposition to granulate, assumes the appearance of a semi-fluid substance of great tenacity and adhesiveness, such as we may suppose would be produced by a mixture of equal parts of mucilage and sugar.

The term "*smear*" is applied by sugar-refiners to syrups of this kind.

It is a condition not confined to impure syrups only, but it likewise occasionally occurs in those of the greatest purity. It takes place, however, much more frequently in the former, particularly in those which contain a large quantity of saline matters, as in green syrups, molasses, &c.

The real nature of *smear* is not known. It probably depends upon some electro-chemical change, excited in the molecules of the sugar during the process of concentration; but which, however, is not permanent, for syrups thus affected will, if left to themselves for some time, gradually become more and more crystalline; or if they be diluted by the addition of a little water, and be again concentrated, granulation will ensue, as if nothing had previously happened. Generally their exposure in a heater for a short time to such a temperature as will preserve their fluidity, is sufficient to destroy this character, and to restore the crystalline powers of the sugar.

Before proceeding farther, I must remind the sugar-boiler that whether he concentrates his syrups highly or the reverse, that is, to a point that indicates the amount of water at less than ten per cent., or to one that shows this quantity to be somewhat greater than twelve per cent.; in other words, where the molasses will be less than thirty per cent., or greater than thirty-six per cent., he must not lose sight of the process which is to succeed, and to the effective performance of which the syrup, during concentration, ought to be adapted; namely, the complete separation of the mother liquor, or molasses, from the sugar, with facility and despatch.

I believe that this point has not been sufficiently attended to by the persons in charge of the few vacuum pans, which are at present in operation in the colonies. It is probably owing to this cause that the sugars hitherto produced by that apparatus evince, by their clamminess and stickiness, the imperfect curing which they have undergone, and which either diminishes their marketable value, or demands an expensive process of liquoring to remedy.

The foregoing calculations it may, perhaps, be necessary to state, are based upon the supposition that syrup is composed of sugar and water only. But when foreign substances are likewise present, as is the case when the syrup is obtained immediately from cane-juice, some allowance must be made for the disturbing action produced by them, and which will be in direct ratio to their amount. The changes produced in the cane-juice during the various operations to which it is submitted when conducted as they at present are, will likewise cause other deviations from the rule. Thus we generally find that the quantity of sugar is less, and that of the molasses greater, than the amount of water contained in the syrup is sufficient to account for.

In the manufacture of sugar as at present pursued in the colonies, the syrup, after its due concentration in the teache, is passed directly into the coolers. This operation is denominated "*skipping*" or "*striking*," and is effected either by ladling, or by means of a copper skipper, a vessel so adapted in shape as to fit the interior of the teache, and to admit at once the contents of that vessel through a valve made for that purpose. The skipper when charged is rapidly raised by a crane, and it is supposed, that the great injury which the sugar is apt to undergo at this particular time, owing to the intense heat operating upon a highly inspissated syrup, is thus in a great measure prevented.

The coolers usually employed are shallow wooden troughs, varying in size from five to ten feet in length, and from three to five feet in width, but in depth they never exceed one foot or sixteen inches. In some of the islands these vessels are made of copper, but with what object I am ignorant.

Two skips at least, and usually several, are shot into each cooler, where they are allowed to remain until granulation has commenced, and until the saccharine mass has acquired sufficient solidity to permit of its transportation to the hogshead, without risk of its leaking entirely into the molasses cistern.

During its sojourn in the cooler, the hot and inspissated syrup is occasionally stirred about for the purpose of mixing together the different skips, and to obtain throughout them a uniform temperature; in other words, to reduce them to the temperature of the surrounding atmosphere, with as little delay as possible. If such have been the motives which have caused the planter hitherto to treat his concentrated syrups in this manner, assuredly he could have devised no plan better suited to obtain his ends, for the position of the coolers in the boiling-house exposes their contents to the strong gusts of wind which are admitted on all sides into the building, and the shallowness of these vessels causes the heated syrup which they contain to present a very large surface to the cooling influence of the atmosphere.

By pursuing this plan, the inspissated syrup is most effectually and rapidly *cooled;* and as at the state of concentration to which it has been previously brought it contains a quantity of sugar more than sufficient for its saturation, the latter is deposited in an amorphous or semi-crystalline state, and diffused through the chilled and viscid molasses.

The half-crystallized sugar and the mother liquor or molasses being thus blended together, form a doughy and homogeneous mass, which is cured with difficulty, and presenting in the sugar obtained an imperfect crystallization, which is denominated by refiners false grain. Moreover, that portion of the molasses which escapes carries with it a large quantity of sugar, while that which remains adheres to each small particle of sugar with great tenacity, and is there retained by a kind of capillary attraction.

We see, therefore, that by pursuing the system now in use the *cooling* of the syrup is promoted, but its crystallization and perfect curing are prevented.

When the mass of sugar and molasses has become sufficiently cooled, it is dug out of the cooler, shovelled into a bucket or some other vessel, carried into the curing house, and then thrown into the hogshead as if it were so much manure, where it remains until the drainage of the molasses is sufficiently complete to admit of its shipment. To assist the cooling process the curing-house is generally open to windward, and it is not unfrequently kept as cool as possible.

Had the planter intended to convert the cane-juice into dough or bird-lime, he could scarcely have invented a more successful method of accomplishing his purpose; but to obtain sugar, a more ill-judged method, or one more defective in principle, could not be employed.

Concentrated cane-juice, even when in a state of the greatest purity, always contains a certain amount of saline matters, more or less soluble, which, by their combining with sugar, form highly deliquescent compounds.

Whatever may be the reason, cane-juice is at present seldom admitted into the clarifiers free from a small admixture with lactic acid, which demands the employment of a large quantity of lime for its neutralization.

Generally an excess of lime remains in the syrup, its separation not having been effected by the use of filters. In this way the quantity of saline matter is preternaturally increased.

Cane-juice likewise contains a considerable quantity of a highly hygroscopic organic substance, which I have called the deliquescent matter of Hervey.

These substances are not crystallizable; and were the concentrated syrup treated in a proper manner they would quickly separate from the sugar, and pass away in solution in the mother liquor. But by pursuing the present system all the constituents of the cane-juice are bound up together, and form a homogeneous, pasty, and semi-crystalline mass, in which the vinous fermentation is sooner or later established.

The result is as might, *à priori*, be imagined. The sugar being bound up with these foreign substances, gradually melts away like ice in warm weather The drainage, which is seen issuing on all sides from the hogshead, does not consist merely of the mother liquor—that is, of the sugar held in solution by the water retained in the syrup, and the uncrystallizable and deliquescent saline bodies above mentioned, but it is formed by the gradual melting of the entire contents of the cask—a bodily wasting away of the product of all our labors.

Thus a hogshead containing 200 imperial gallons of concentrated syrup will weigh about 2,860 lbs. net, which ought to produce, if the manufacture had been properly conducted, 2,000 lbs. of good sugar and 860 lbs. of molasses, deliverable in England, but which usually gives only 1,680 lbs. of an imperfectly crystallized extract, and 660 lbs. of molasses, the remainder being the loss sustained by leakage, &c. From the 1,680 lbs. of sugar, when it has been submitted to a process of refining, rarely more than 75 per cent. of crystallized sugar is obtained in the form of loaves, lumps, pieces, and bastards; there being 20 per cent. of uncrystallizable treacle and 5 per cent. loss.

This enormous loss in crystallized product, it is true, is not caused exclusively by the improper system of *potting* now pursued; it is caused in part by other errors also, committed in the antecedent stages of the manufacture. But it is to the former cause alone that the slow and imperfect drainage, the loss in weight occurring during the voyage home, the leakage of part of the crystallizable sugar, and the retention of the saline and other uncrystallizable matters, the presence of which is so injurious to the sugar, are owing.

It is said that the colonial sugar boiler, in pursuing the present method of potting and skipping, only follows the example of the sugar

refiner of former years, who skipped his syrup when sufficiently concentrated into a cooler, where it remained (being stirred occasionally with an oar) until crystallization was established. There is, however, no parallel between the two cases. It was the business of the refiner to form his sugar into loaves and lumps; and it was necessary that they should be compact, and present a uniformity of grain. He was therefore compelled to skip his concentrated syrup into some vessel which would permit of its being stirred or moved about during the time that granulation was commencing. But he took every care that the syrup should not be chilled, and while still in a fluid state he poured it into the moulds in which the granulation was completed. Had he acted as the planter now does, the sugar would not have drained, the after processes would have been accomplished with difficulty, and would have been attended with a heavy loss.

Of all the branches into which the manufacture of sugar is divided, none admit of being so easily reformed as the one before us; but here, as elsewhere, a knowledge of the principles which should guide us in its performance is essential.

When the syrup has arrived at that point of concentration which is desirable, the next objects to be attained are, 1st, as large an amount of crystallization as possible; 2d, as distinct and perfect a crystallization as possible; and 3d, as a result of the two former, an easy separation of the molasses.

Crystallization may be considered as a variety of the attractive force by which particles of similar matter are drawn together, and are then so arranged that the whole puts on some regular and determined form; so that it not unfrequently happens that by a merely external examination of this form of crystal, its nature and composition may be ascertained.

To enable particles of matter to assume the regularity of form which crystals exhibit, it is obvious that they must have *freedom of motion*. This is usually effected by reducing the substance to be acted upon either to a gaseous or liquid state.

When a substance is reduced to a liquid state, by its solution in some appropriate menstruum, as water, alcohol, &c., its particles are considered to be disposed at regular distances in the liquid. If the quantity of liquid be considerable, the particles are too far apart to attract each other; but if the quantity of the liquid be diminished by evaporation, the distances diminish, and at length the particles entering within the sphere of each other's attraction are drawn together by certain laws which induce them to assume a definite form, as a cube, a rhomb, a prism, &c. Other particles remain dissolved in the liquid, forming what is called the mother liquor.

That this phenomenon may be effectually produced, it is essential, as just stated, that the particles have great freedom of motion, and whatever tends to prevent this tends likewise to check crystallization. If the menstruum be limpid and thin, the effect is produced most favorably; but if it be thick, adhesive, and tenacious, the reverse will occur.

The size and regularity of form in the crystals will be influenced

by the rapidity of the evaporation. If this process be slowly conducted, the particles unite with great regularity; if it be hurried, the crystals are irregular and confused. We have good examples of the two cases in loaf sugar and sugar candy.

If these data be applied to the management of the syrup when skipped, such a plan should be pursued that the syrup may be preserved in a state as free as possible from viscidity or tenacity, so as to admit of the easy approximation of the saccharine particles. For this purpose the contact of cold air, and particularly draughts of wind, should be avoided; and to prevent the too sudden or rapid cooling of the syrup, it should be exposed to a gentle and uniform temperature. That the crystals of the sugar may be perfect in form, distinct, and sufficiently large, the syrup should be placed in such a condition that the process of crystallization shall not be too hurried. It must, however, at the same time be borne in mind, that the results of the operation must be regarded in a commercial rather than chemical point of view; consequently, that the time allowed for its performance should be no more than what is absolutely necessary; for in this, as in all other branches of manufacture, time is capital, and can be spared only at a certain sacrifice.

To effect these objects, the concentrated syrup should be skipped immediately into moulds or forms, or into large wooden cases of a size sufficient to contain a hogshead of sugar. In either case these receivers should be placed in a curing house, the uniform temperature of which is carefully preserved, and from which all currents of air are excluded.

When forms or moulds are employed, their size should be as great as can be given to them consistent with a facility of their being lifted and reversed when their contents are required to be taken away; because they will occupy less space, a less amount of labor will be required to discharge an equal weight of sugar, the cooling of the syrup, in consequence of its greater bulk, will proceed more slowly, consequently the crystallization will go forward for a longer time, and will in every respect be more complete and perfect.

The moulds having the holes at their extremities plugged up with a piece of rag, are to be placed side by side over jars which rest on the *floor* of the curing-house; or they may be fixed in holes cut in tables made for the purpose, under which are gutters for carrying away the molasses as they escape. These vessels are to be filled in succession with the syrup from the teache; and when crystallization has advanced so far as to form a crust or pellicle on the surface of the syrup, a wooden knife must be introduced, for the purpose of separating the crystals on the surface and those which adhere to the sides of the vessel, and dispersing them throughout the mass. This operation should be repeated once or twice, otherwise the crystals which always appear first at those parts of the syrup most exposed to the cooling action of the atmosphere will drive the liquid portion to the centre of the cone. The drainage under such circumstances would be tedious and incomplete, and the lower half of the sugar likewise, from the percolation of the dark molasses through it, would

be soiled. Moreover, if the cooling took place very rapidly, the crystallization of the sugar would be replaced by the formation of compact rocky masses, which would never undergo complete drainage.

When the contents of the moulds have attained throughout the temperature of the curing-house, which will be in 24 or 36 hours, the plugs should be withdrawn, and the molasses allowed to escape.

It sometimes happens, that in consequence of an insufficient concentration of the syrup the sugar in the moulds is too free, and a quantity of crystals may escape with the molasses. When this is the case, it is advisable to introduce into the hole at the apex of the mould a hollow cone of tin or copper similar in shape to an extinguisher, which is pierced with a number of small holes of such a size as to admit of the escape of the molasses, but which will retain the crystals of the sugar.

The curing-house ought to preserve a great uniformity of temperature—that of 90° being the one best suited for all purposes. This is readily effected without artificial aid within the tropics. All currents of air should be prevented, and light should be freely admitted; the windows which are now left open should be glazed and closed, or, still better, glass sky-lights made in the roof may be advantageously substituted for them.

The refiners of Europe always employ *moulds* for potting their sugars, and in many respects they offer advantages over the kind of vessel I am about to describe, for the drainage from them is more rapid and more complete, and the sugar in consequence is more speedily and more effectually cured. They also admit of a more easy and more successful syruping afterwards, should it be desirable to submit the sugar to that operation. On the other hand, their use requires more labor, a more spacious curing-house, and I think that the crystals of the sugar are both smaller and less perfect than when the following plan is employed, which, perhaps, on the whole, at the present time, is the one best suited to the colonies.

A sufficient number of water-tight wooden chests or boxes, varying in size from three to four and a half feet cube, according to the quantity of produce daily obtained, are to be placed side by side on the joists of the curing-house, in such a way as to leave between every two rows a passage or gangway for the use of the people employed in the works.

Each box should be provided with a false bottom placed about two inches above the lower one. It may be formed of a sheet of metal perforated with a great number of minute holes, of fine metallic wire or of wicker-work, and must be so strengthened as to admit of its supporting the weight of the superjacent sugar. The false bottom may be covered over with a piece of coarse sacking, on which is to be spread a layer of dry sugar, about an inch in thickness. A wooden plug, a cock, or, still better, an American molasses' slide, is to be inserted into the space between the two bottoms; the apparatus is then complete.

Skip after skip of the concentrated syrup is to be poured into this vessel until it is full. Each skip as it is poured in must be blended

with those which have preceded it, so as to equalize the temperature of the whole.

When the vessel is filled, its contents must be allowed to remain in a state of repose until a film of crystals is seen upon the surface. A slight stirring will then be required to disperse the crystals, which must be repeated occasionally until all danger of the formation of a cavity in the centre is past.

So large a bulk of hot syrup necessarily requires a much longer period to cool than would be demanded by the contents of a large mould. Three or four days will, however, be quite sufficient for the purpose.

When the mass has set, has become solid, and has acquired throughout the temperature of the curing-house, the plug must be withdrawn and the molasses suffered to escape.

The form of the crystallizing vessel may be modified in a variety of ways. The following may be employed with advantage. Instead of a false bottom it may have three or four holes of three quarters of an inch in diameter bored into it. These holes should be fitted with wooden plugs, which can be withdrawn when the drainage is required to begin.

When the concentration of the syrup has been effected at a low temperature, in such wise that crystallization of the sugar has taken place at the same time, it is customary to skip into a heater, that is, a vessel surrounded by a steam jacket. By this means the temperature of the syrup is preserved, and very frequently augmented several degrees. It is here kept for some time, being frequently and briskly stirred, so as to mix together the different skips, to equalize their temperature, and to diffuse the crystals as much as possible.

In consequence of the regulated degree of heat to which the syrup is submitted during this process, it is presumed to be placed in a condition best suited to assist the crystallization of that portion of it which, from over saturation, has a tendency to separate in a solid form, and which would do so in an amorphous or semi-crystalline state, were the temperature not kept up. While in this fluid state it is passed into the moulds, and is then treated in the manner described.

This operation is essential to the refiner, but it is questionable whether the advantages that it offers to the planter are sufficient to compensate for the additional trouble and expense that its employment would entail.

Indeed, I think the use of the heater may safely be dispensed with in those colonial boiling-houses where the syrups are concentrated at a low temperature, and one of the former plans of skipping into cold granulating vessels be substituted for it. When concentration is produced by ebullition in the open air, the employment of the heater would be inadmissible.

It is now several years since a patent was taken out by Mr. Hague for "certain improvements in the method of expelling molasses or syrup from sugar." This plan consists in placing the concentrated syrup in a vessel which has a false bottom perforated with many minute holes. When the mass is sufficiently consolidated, a vacuum

is formed in the space between the two bottoms, into which is inserted the suction-pipe of an air-pump for the purpose. By the pressure of the atmosphere it was imagined that the molasses would be expelled, leaving behind them the solid sugar.

The same principles are carried out in an improved manner in the pneumatic pan lately patented by Mr. Cooper.

In the granulating or curing apparatus of the latter gentleman, the concentrated syrup can be skipped directly from the teache; and when the granulation is completed, on a sufficient amount of exhaustion being effected, the resilience of the cane-work, of which the false bottom is constructed, is overcome, and the molasses are forced away, leaving the crystallized sugar behind.

Pneumatic curing vessels, however, of whatsoever construction they may be, perform the purposes for which they are intended very inefficiently, when employed upon the badly granulated sugars made at the present time in the colonies. The attraction between the false grain of the sugar and the surrounding viscid molasses cannot in this manner be overcome; for whatever may be the degree of vacuum obtained, a large portion of the soft and yielding sugar is forced away in the drainage, and a quantity of molasses more or less considerable is still retained. But when the sugar has been manufactured in a skilful manner, when the grain is large, bold, and distinct, an apparatus of this kind, there can be little doubt, may be employed with considerable benefit in the economization of the time at present required for the "*curing*."

When the drainage from the sugar in the moulds or chests has ceased, or when the molasses come away very slowly, it is at all times advisable to assist their more perfect separation by artificial means. The process by which this object is obtained may be said to constitute the essential part of the art of refining, as by it we have it in our power, provided the previous stages of the manufacture have been skilfully conducted, of obtaining sugar of the most perfect whiteness and purity—the only limits in this respect being the commercial consideration of profit and loss.

The means formerly employed by the refiner and beet-root sugar manufacturers of Europe for effecting this object, consisted in applying to the upper surface of the sugar a "*magma*," composed of clay beaten up with water to the consistence of a thick cream. The water being in a great measure retained in the clay, as in a sponge, separates slowly from it, and percolates gently and gradually through the sugar, forcing the dark molasses before it. In the course of a few days the clay becomes dry; it is then removed, a fresh supply is administered, and this is repeated until the sugar acquires the color desired.

This process is still pursued in Cuba and the Brazils; but there are certain disadvantages attending it which are sufficient to cause its total abolition in every boiling-house, namely, its inefficiency for the purposes intended, the great loss of weight produced by the dissolution of the granulated sugar in the water, and the length of time required for its performance. The following system ought always to be substituted for it.

Liquoring or syruping the sugar has for its object the replacing of the dark-colored molasses by another liquid of greater purity and of lighter color. The liquid to be selected for this purpose must be of a sufficient density to force the molasses before it as speedily as can be done with benefit; it must be incapable of dissolving any portion of the sugar with which it comes in contact; it must be much lighter in color than the molasses to be displaced; it must be innocuous to health, and of such a nature as not to diminish the degree of sweetness of the entire mass.

The only liquid with which we are acquainted, that possesses all these qualifications, is a light-colored syrup, of such a density as to indicate its saturation at the temperature of the atmosphere.

When, in the judgment of the sugar-boiler, the contents of the moulds or cases are sufficiently cured to admit of their being liquored, he must proceed as follows. The crust which always exists on the upper surface of the sugar must be removed to the depth of one or two inches, and an even and perfectly smooth face must be given to the sugar below by means of a curved knife and a towel. The sugar which has been removed must be crushed fine, and mixed with cold water to the consistence of mortar, so as to form a magma, or paste, free from lumps, in which state it is to be returned, and spread over the face of the sugar as evenly as possible.

In a few hours the face of the sugar will have become again sufficiently free from moisture to allow the liquor or syrup to be poured on it.

To prepare the syrup we may employ either the refined lumps imported for the purpose, or sugar expressly prepared in the boiling-house; or, perhaps, what will in general be found most advantageous, a quantity of syrup taken from the evaporating vessel, and rendered of the density required by the addition of the necessary quantity of footings or headings.

However prepared, the syrup must have the color which the quality of sugar we may be desirous of obtaining will demand. For this purpose, when the liquor is not prepared from the refined sugar, it is essential that it should be passed through a charcoal filter, or that it shall be blown up with fine charcoal and blood, and afterwards filtered through bags.

If the syrup be prepared from sugar alone, its concentration must be carried on until it has a density of 31° 5′ Beaumé, when cold. If it be prepared from liquor from the evaporating vessel and dense and pasty footings, its density must be about one degree higher.

When perfectly cold, the syrup must be poured to the depth of two inches over the sugar prepared in the manner just described; and it is necessary that a smooth and even face shall have been formed; otherwise the syrup is liable to percolate very unequally, and often to escape through holes and passages which it makes for itself.

In the colonies it will seldom be necessary to "syrup" more than once; but if a still better color be required, the operation may be repeated. We may, if we choose, as I have already stated, by the use of very colorless syrup, produce a sugar equal to the best crushed

lumps of the European refiner. It may, however, be doubted whether carrying the process of syruping to the extent practised in Europe will be, on the whole, profitable.

Sugars which have undergone this process, even to a limited extent, are not improved in color only, but they are also much drier, less adhesive, their grain is more distinct, and they suffer no loss of weight from leakage during the voyage home.

The process of syruping or liquoring the sugar is not merely an improvement upon the old method of claying, for the principles on which the two act are different. By the use of the clay we obtain merely the beneficial results which are caused by the washing of the crystals with water, and these are effected at a considerable loss. For the water as it percolates dissolves more or less of the sugar with which in its passage it comes into contact; and in consequence of its union with the molasses, its bleaching effects are confined to a small distance beneath the surface. But a solution of sugar of the required density being in a state of perfect saturation cannot so act: it already contains as much sugar as it is capable of dissolving at the surrounding temperature; and its action is consequently confined to the purely mechanical one, of forcing by its weight and pressure the molasses before it, and of occupying their place.

On the surface of sugar which has been syruped there is formed a hard crust of very little thickness, but which is always of a deeper color than the sugar underneath it. This crust may be removed, or it may be bleached by covering it with a damp cloth, which acts in the same way as moist clay.

It has been recommended to use strong spirits of wine for the purpose of discharging the molasses from sugar. As this plan presents no advantages, and as it is one attended with considerable expense, it has never been generally adopted.

When the pneumatic curing pan is employed, the molasses may always be effectually discharged from the interstices of the sugar by causing a quantity of fine syrup to be forced through when the curing is sufficiently complete. But the quantity of syrup required for the purpose must be very considerable, owing to the form of the pan and the large surface of sugar which is exposed. The process, therefore, when applied under these circumstances, will necessarily be a very expensive one.

When the sugar after it has been syruped is sufficiently dry, it must be taken out of the moulds and cases, and put into hogsheads or bags ready for its shipment. Those portions, however, which still remain moist, may be used for making the syrup for liquoring: they may be put into smaller vessels to undergo a renewed drainage, or, if very clammy, they may be returned into the concentrating vessel, and there be mixed with the syrup which it contains.

When practicable, some advantage would be obtained by exposing the sugar to the heat of a stove for a day or two previously to its being placed in the hogsheads, but not sufficient to repay the expense of erecting a building for the purpose.

By the mode at present pursued of potting in the hogshead, the

drainage as it escapes passes directly into the molasses' cistern, a cavity situated immediately beneath the beams of the curing house. This cistern is consequently exposed and open. It is lined with cement, and is seldom in a perfect state of repair.

Here the molasses remain until they are shipped, or until they are required for distillation. The result is, as might be expected, rats, cockroaches, and other vermin, creep in and assist, by their decomposition, the rapidity and degree of the fermentation, which, under any circumstances, is sooner or later certain to arise.

In the palmy days of West India prosperity this lax and improper system may in some degree have been excusable, owing to the highly remunerative prices obtained for all the produce; at present it can only be considered as one of extravagance, and therefore of loss.

In the first place, a quantity of molasses is always lost, either in consequence of the leakage of the cistern, or from its absorption by the cement. 2. Owing to the evaporation constantly going on, a quantity of a soft, whitish, and amorphous sugar, is precipitated to the bottom of the cistern. 3. The vinous and acetous fermentation set in, and a part of the saccharine matter is converted into carbonic acid, alcohol, and acetic acid or vinegar, while another part is converted into uncrystallizable glucose. Thus from a fluid possessing a bland, sweet, and sugary taste, the molasses are often changed into one having an offensive smell and a foreign and disagreeable taste. During the voyage these changes continue, and often increase in intensity, from the high temperature existing in the hold of the ship. Nevertheless, in spite of all the injuries which they have received, the molasses, on their arrival in this country, find a market, and by the skill of the purchaser are converted into sugar, of a quality superior to that from which they were originally obtained.

Can there be a greater proof of the ruinous management of a West India sugar estate than this fact? (In Jamaica, owing to the high price obtained for the rum, the molasses are wholly converted into that spirit, and the loss is considerably diminished in consequence; but in those colonies from which molasses are exported, the decomposition which they undergo is a serious item in the depreciation of revenue of every estate.)

Many planters assert that molasses cannot be concentrated so as to afford sugar by the plant now in use. I know not how they have arrived at such a conclusion; for in the Mauritius, where the distance from a market causes the exportation of the molasses to be an unprofitable speculation, the first and second syrups are always reboiled, and not unfrequently the third also. The plant of that island is the same as the one in use in the West Indies.

At present the West India proprietor for the most part distils one part of his molasses, the remainder is shipped to this country or to America. If it is found more beneficial to send them to an English market than to distil them on the estate, it is evident that the profit which there attends their conversion into sugar is obtained at the expense of the proprietor, who has to submit not alone to that loss, but likewise to the one which results from their deterioration, and

this cannot be less than from ten to fifteen per cent., and probably it is much more.

There can be no doubt that the molasses ought to be converted either into rum or sugar on the spot where they are produced, and at as short a time after their separation from the sugar as possible. The first may not be a remunerative operation; but either the second must be, or else the manufacture of sugar from cane-juice is one altogether profitless. For while the expenses attendant on the cultivation of the canes, and the concentration of the juice into sugar, are considerable, those required for the boiling of the molasses are very small indeed, the amount of evaporation necessary for their inspissation seldom exceeding twenty per cent.

Were the concentration of the green syrup or molasses generally practised, the economy that would result would not be confined to the increase in the quantity of sugar that would be obtained; but the adoption of the plan would also admit of a considerable improvement in its quality. It is now the object of the planter to extract at one operation from the cane-juice as great a quantity of sugar as he can, the consequence is, that the point of concentration is often carried too far. This appears to have been the case whenever the method of concentrating *in vacuo* has been pursued; and although the crystallization is in those cases generally very perfect, the separation of the molasses from the sugar is rarely found to be complete, and the value of the latter article is thereby rendered less than what it would otherwise have been.

If the conversion of the molasses into sugar be decided upon, every means ought to be adopted to perform the operation before their fermentation shall have commenced. Instead, therefore, of allowing the drainage to pass into an open cistern, the syrup should be collected in gutters, made of tin or wood, placed for the purpose underneath the crystallizing vessels, and by this means be conveyed into clean puncheons so fixed as to receive it.

At the end of the week, at the latest, the molasses should be worked off. This may easily be done; as Saturday, a day on which no work is performed in the greater number of the colonies, may be set apart for the purpose.

Molasses, like the original syrup, may be concentrated either over the naked fire or by steam, at a high or low temperature; and the same directions are applicable to them as were before given for the cane-syrup. We should remember, however, that the poorer the syrup the more stiffly will it require to be concentrated; so that if the syrup which drains from the molasses-sugar be concentrated, it should be inspissated as highly as is consistent with its ultimate drainage.

The more stiffly these low syrups are concentrated, the greater will be the temperature required for curing the sugar produced from them.

After every consecutive concentration the molasses acquire an increased density. When it becomes equal to 44° Beaumé, crystallization can no longer be induced.

The drainage which comes away from the first sugar after syruping, should be carefully separated from the molasses themselves; it should be returned to the evaporating vessel, and there be mixed with the defecated cane-juice. The drainage from the molasses-sugars or bastards, when syruped, may be mixed with the first quality of the molasses, or it may be thrown into the concentrating vessel at once.

The sugar obtained from the first molasses ought always to be liquored, and the syrup used for the purpose should be made from the sugar obtained from the cane-juice.

Concentrated molasses are sometimes too poor to bear much stirring in the crystallizing vessel.

The time required for their crystallization is in proportion to their richness, and may vary from twenty-four hours to a week. The drainage should not be suffered to commence until the necessary quantity of grain is fully formed.

It is by producing a superior quality of molasses, that one very considerable advantage is obtained by the filtration of the evaporated cane-juice through animal charcoal. When this process has been pursued, the molasses may be concentrated without undergoing any previous treatment. When it has not been resorted to, the molasses have a darker color, and they are more viscid and tenacious; nevertheless, they may likewise be reboiled, or otherwise concentrated, at once, and the sugar produced will be of a tolerably good quality.

But in England molasses are either blown up with fine charcoal and blood, or with alumina: they are then passed through bag filters, and afterwards through deep beds of animal charcoal. In the colonies the filtration through charcoal would be far from economical, as the force of the charcoal would be expended on bleaching a liquid, a portion of which, after the extraction of a profitable quantity of sugar, is destined merely for distillation.

Dark and viscid molasses are much improved by being blown up with a little sulphate of alumina and chalk or lime, in the manner described in the chapter on Defecation. When this is performed, they should be reduced by the addition of a small quantity of water to the density of 32°, 33° Beaumé; and, after ebullition in a *copper* vessel, be passed through bag filters. This operation will not be urgently required if the molasses be submitted to concentration at as short a period as possible after their separation, and before fermentation has commenced. The results produced by it are, however, always beneficial.

When the last drainage from molasses sugar becomes at length so poor, as in the judgment of the planter to be unfit for a profitable concentration, it should be conveyed to the still-house to be converted into rum.

The number of times that the molasses may be submitted to concentration will depend upon many circumstances: in the West Indies, twice probably will be the utmost that this operation will be performed, even when the cane-juice is rich: the third runnings in

all cases will, there can be little doubt, be most advantageously used for distillation.

When the syrup shows no sign of granulating, this result may often be obtained by stirring through it a small quantity of dry sugar to form nuclei for the crystals.

For the perfect curing of sugars obtained from low syrups, the temperature of the curing-house should be at least 100°, when that point can be obtained without inconvenience; and the air should be as free from moisture as possible.

We have now gone through all the operations which collectively form the manufacture of sugar from cane-juice. It has been shown that each of them possesses an evident and distinct purpose, on the attainment of which the successful result of the whole will greatly depend. The principles on which their right performance is based have been explained, and the application of those principles has, I hope, been proved to be both easy and simple. My reward will be great, could I be assured that the reader, if he be a planter, will rise from the perusal of the foregoing pages with clearer views than he before had of the theory of his art; that he will have acquired the conviction that it possesses none of those mysterious difficulties with which his imagination has too frequently clothed it, and that he will thereby be encouraged to practice it with pleasure to himself, and with profit to his employers.

Let us again take a short and retrospective view of these operations, the better to impress upon the memory the objects which by their means we wish to obtain.

1. The canes should be cultivated with a view not merely to their size and abundance, but we should, at the same time, by every means in our power, cause them to yield a juice as rich in saccharine matter, and as free from all impurities as possible; and to prevent the evil which would result from decomposition of the juice, when cut, the canes should be conveyed to the mill without loss of time.

2. We should attempt to get from the canes the largest quantity of juice, either by improved mills, or by close attention to the fitting, bracing, feeding, &c., of those now in use; by sprinkling the megrass with water, or by exposing it to steam, and by repassing it between the rollers.

3. We must employ the best means in our power to defecate the cane-juice; that is, to make this liquid approximate as near as we can to a solution of sugar and water only. Its speedy exposure to the action of a high temperature must be effected, and the greatest caution must be practised in the administration of the "*temper-lime.*"

4. The defecated liquor should be evaporated to the density of 32° Beaumé, or to any other suitable degree, with the greatest expedition; care being taken, at the same time, that the carbonization of even the smallest particle of the sugar be prevented, by constantly preserving in the pan a depth of liquor sufficient to cover that part of it which is exposed to the fire.

5. The object of filtering the liquor through animal charcoal, is the more perfect removal from it of the albuminous principles, excess of lime, coloring matter, acidity, &c.

6. That the concentration of the syrup to sugar, proof should be effected with rapidity, and at the lowest temperature possible.

7. That to promote an abundant and perfect crystallization, repose, moderate warmth, and an equable temperature are necessary; and to effect the better curing of the sugar, these two operations should be performed in the same vessel.

8. That to induce the complete separation of the molasses, the sugar, when sufficiently cured, should be submitted to the process of liquoring.

9. The molasses must be concentrated before any fermentative change shall have commenced.

Such are the objects that the planter has in view (whatever may be the means selected for obtaining them) in his efforts to extract sugar from the sugar-cane. In my humble opinion at least, a knowledge of the principles on which those operations are based will be found to benefit him far more than the supply of the most expensive machinery and apparatus, where this knowledge is wanting. It is not the instrument that makes the musician, neither does it follow that the most perfectly arranged boiling-house will produce the best sugar, where the skill which ought to direct its management is wanting.

A sugar boiler who understands his business will always be able to accommodate his means to his purposes.

A little reflection will show, that all the foregoing operations may be performed, more or less satisfactorily, in a variety of ways; that is, by keeping in view the objects sought for, the merely mechanical contrivances introduced to effect them may be modified almost infinitely. We have sufficient examples of these contrivances, in the great number of patents which, within the last few years, have been obtained in this country, and in France, for improving the manufacture of sugar, and in the various and costly machinery lately introduced into some of our own, as well as into several foreign possessions. In not any two cases, probably, is the plant exactly alike. On one estate the evaporation is performed over the fire, on another by means of steam, while in the central factory of Guadaloupe this process, as well as the subsequent one of concentration, is conducted *in vacuo*.

It must not be supposed that I undervalue the importance of those inventions; on the contrary, I consider them as improvements in the highest degree, and as such deserving the greatest commendation; but it cannot be denied that the results which have followed their precocious introduction into the colonies, have generally indicated that both proprietors and planters have commenced at the wrong end; that they have sought perfection without having previously acquired the knowledge necessary to attain it. Moreover, the vast majority of estates are so encumbered, and capitalists have yet so little confidence in the results of free negro labor, as to preclude, for

the present at least, the possibility of their possessing generally new and expensive apparatus; I must, therefore, reiterate my conviction, that the great element of success in the planter is such a knowledge of his business as will enable him to improve the circumstances which surround him.

I have already pointed out a method, unaccompanied with expense, of improving the present arrangement of the boiling-house. I shall now proceed to mention one or two others.

Let us suppose that a planter has to conduct the management of an estate, on which the boiling-house contains, for manufacturing purposes, merely five old-fashioned teaches constructed of iron; that there shall be a great deficiency of available means, and that poverty admits only of the least expensive improvement in the plant. Much even here may be done: an increase in the quantity of juice obtained from the canes, equal to from 5 to 10 per cent. over that previously expressed, will, in all probability be effected by the bestowal of a little care and attention upon the mill. The removal of the teache, and the substitution for it of a circular flat-bottomed concentrating vessel, made of copper, and set upon a separate fire, will be required. The remaining pans will continue *in sitû*, the fire being applied underneath the one which before was the second, but which in the new arrangement will be the first. A set of bag-filters, fitted as near as possible to the first pan, that is, in the place previously occupied by the teache, completes the alterations. The cane-juice, on being received in the grand copper, is exposed to the action of heat and lime, that the separation of the nitrogenized substances may be as complete as possible. If the pans be made of iron, the defecation cannot be assisted by the addition of a little sulphate of alumina, in consequence of the action which the sulphuric acid would exert upon that metal; the hydrate of alumina produced by the decomposition of the sulphate should therefore be substituted.

The scum should be removed in the usual manner; and when the liquor in the vessel which is placed over the fire acquires the density of 32°, it should be passed into the bag-filters. After filtration the syrup is to be concentrated, and the sugar should be crystallized in boxes of a size suited to the work to be performed.

By this mode of treatment the amount of crystallized extract will be much greater, and its quality will be superior to that obtained when the ordinary method of manufacture is pursued.

Should we be desirous of effecting a still greater improvement in the quality of the sugar, a quantity of fine animal charcoal may be thrown into the liquor when duly skimmed and defecated, in the proportion of from five to six pounds of the former to one hundred gallons of the latter; and when the liquor in the first copper has acquired the density of 30°, two pounds of dried blood, previously dissolved in five or six gallons of cold liquor, are to be thrown in and briskly stirred; ebullition will recommence almost immediately, when the whole should be skipped into the bag-filters. When the pans are made of copper, the defecation may be rendered more

effectual by decomposing the sulphate of alumina while in contact with the cane-juice by the addition of lime or chalk.

To assist as much as possible the work of the filters, sieves, constructed with metallic wire, may be suspended over each copper, and the liquor in its progress forward should be caused to pass through them. The meshes of course should be as small as is compatible with the rapid transmission of the liquor.

Another modification in the arrangement of the plant consists in retaining all the coppers as they now are, but confining their use to defecation and evaporation merely. The cane-juice, after defecation and the removal of the scum, is to be evaporated to 33°, and on its attaining that density it is to be conveyed from the teache to a large clarifying vessel, made deeper than those which are usually so called, and capable of holding three or more skips. To each skip as it enters should be added a quantity of fine animal charcoal, and when the vessel is sufficiently charged, blood, either fresh or dried, must be thrown in. Heat must then be applied, and when ebullition has fairly commenced, the fire is to be damped and the liquor must be run into the filters.

If the merits of Gadesden's concentrating pan be found on experience to correspond with the reports now received respecting it, this apparatus ought to replace the open vessel, in which concentration can only be effected at a high temperature, whenever the means of the proprietor will admit.

Slight alterations in the plant, similar to the above, are, I am afraid, the only improvements that the poverty of many proprietors of sugar estates will admit of being effected in the boiling-house, at least for the present.

Were the sugar colonies in a more prosperous condition, so as to encourage the formation of new establishments for increasing the production of their staple, the following considerations should direct us in the choice of locality and the mode of erection :—1. The obtaining of a cheap motive power. 2. The easy supply of fuel other than megass. 3. The facile communication with a good shipping place. 4. The economical and effective arrangement of the plant. Let us apply these desiderata to the construction of a boiling-house capable of making 300 tons of sugar.

Of all motive powers, none can be compared with water in point of economy, nor is any more effective when the supply is permanent, abundant, and skilfully applied. Its mode of application should be that of an overshot wheel.

The mill should be of the most solid and artistic construction, and should be composed of four rollers. It ought to be sufficiently elevated to permit of a gentle descent in the passage of the cane-juice into the clarifiers. Those vessels should be three in number, and they may either be square to economize space, or altogether of the form and size of those now in use: their contents may be heated with dried cane-tops or megass, and ebullition of their contents must be induced as quickly as possible.

The clarifiers should likewise be so raised above the level of the

evaporating vessels as to permit the defecated and filtered cane-juice to run from the lower cistern of the filters directly into those vessels, without the assistance of a pump or *monte-jus*.

The evaporating vessel or vessels should be constructed on the plan of either of those recommended in the chapter on that subject; and to its discharging extremity there should be attached a cylindrical copper cistern, resting on the floor of the boiling-house, and raising to a level with the bottom of the evaporator. The cistern should be closed at top, and it should communicate with the evaporator by means of a pipe, on which is affixed a stop-cock.

In it also is to be introduced the whole of the working barrel of a small force-pump, for the purpose of raising the syrup either into the charcoal cisterns, when they are used, or into the cistern from which the concentrating vessel is to be supplied. The evaporation should be effected by coals.

The objection raised against the use of pumps is the liability to souring of the liquor induced by the decomposition of a small quantity which is absorbed by the wood, leather, and tow of the clack valve, bucket, &c. This is entirely obviated in the pump patented three or four years ago by Messrs. Palmer and Perkins, which is composed entirely of metal, the valves being merely elliptical disks of copper. These pumps also are worked with the greatest facility, the friction being reduced almost to a nullity.

For the purpose in question it is impossible to recommend this kind of pump too strongly; for by its use we have all the advantages of a hot or cold *monte-jus* in a boiling-house, where, from the absence of steam, the latter is inapplicable.

When a pump is employed to raise boiling liquids, it may perhaps be necessary to mention that the working barrel should be immersed in the fluid to be raised.

The modes of filtration through charcoal have been described.

As the employment of steam is not contemplated in a boiling-house constructed upon this plan, the choice of a vessel for concentrating the syrup is limited to one of those in which this kind of heating medium is not required.

There are few situations which possess all the above advantages for the establishment of a sugar factory: one or more of them will generally be absent. For instance: we not unfrequently see that, for the purposes of getting a good water-power, other considerations have been entirely overlooked at the time when many estates were established. This is more frequently observed in those islands which have offered great advantages in this respect. Water is an excellent and cheap power, which should always be taken advantage of when the other requisites are present at the same time; but it is one which we should not hesitate to sacrifice when they are absent.

Steam is a motive power, by the employment of which we almost always have it in our power to select a situation for the erection of sugar works which will possess all the other advantages; for which reason there can be little doubt this agent will be one hereafter most generally adopted.

When steam is the motive power employed in a sugar factory newly established, it may also be the agent selected for the production of heat, should it be thought necessary.*

* It has at all times been known to the planter that the losses sustained in one way or other in the manufacture of sugar have been considerable; but the sources of those losses, and their real amount, were, until lately, subjects on which a very general ignorance prevailed. The extensive researches which have of late been made in organic chemistry, and the application of this department of science to the manufacture of sugar, as well as to other branches of art which have required its assistance, have given us much clearer views on both these points than we formerly had; and we are now able to arrive at the most accurate conclusions respecting the amount of losses sustained, as well as furnished with the means, if we choose to avail ourselves of them, of discovering the causes which produce them.

It has been ascertained, by experiments so numerous and so varied as not to admit of a doubt respecting the accuracy of the results obtained by them, that the stem of the sugar-cane consists essentially of two elementary portions or divisions, the one being the woody fabric or skeleton of the plant, the other the fluid contained within it; and that the relative proportions which the two bear to each other may be stated in round numbers to be ten parts in weight of the former, and ninety parts of the latter in every one hundred.

It has likewise been ascertained, that while the proportions between these two parts of the plant preserve a great degree of uniformity, there is often found a considerable difference existing in the quantities of the respective constituents of the latter or fluid portion; which constituents consist of sugar, salts, nitrogenized proximate vegetable principles, and deliquescent matter, held in solution in a large amount of water.

It has also been ascertained, that the combined quantities of all these bodies contained in a given amount of cane-juice bears a tolerable close ratio to the specific gravity of that fluid; and also, that as the proportion of the other substances is always small compared with that of the sugar, the density of the cane-juice is for all practical purposes a good indication of the amount of the latter, which it contains.

It has further been ascertained, that whatever may be the amount of saccharine matter contained in cane-juice, it is invariably of that kind known as crystallizable or cane-sugar; and that, if by the term molasses be meant a fluid containing any other variety of sugar than the above, such a substance does not exist in the cane-juice.

The molasses are always to be considered as a result of the manipulations to which the cane-juice has been submitted, so that when that liquid has been judiciously treated, the molasses which have been obtained constitute merely the mother liquor resulting from the crystallization of a portion of the sugar, they must, therefore, be composed of the other portion of the sugar, and the before-mentioned components of the cane-juice which have not been separated by defecation, in a state of solution in water; but when, on the other hand, the manufacturing processes have been improperly performed, the molasses will be found to contain other matters likewise which have been produced by changes induced in the sugar, as glucose, mannite, gum, the glucates and melasinates of lime, &c. The latter is generally the case in the common molasses of the market.

Cane-juice having a specific gravity of 1073, or 10° Beaumé, at a temperature of 60°, contains 18 per cent. of solid matter, of which 18, minus about 7-1000, is sugar. At a temperature of 80° the same amount of

sugar would be indicated by a density somewhat below the above; and it may be safely stated without exaggeration, that at the degree of heat common to tropical countries, cane-juice of this density contains fully 18 per cent. of pure sugar.

Experiments performed for the purpose have proved over and over again the truth of the above statements. They have further shown that the density of cane-juice during crop is generally higher than the one given, and that the quantity of sugar contained in that fluid not unfrequently exceeds 22 per cent. For the purpose I now have in view, however, I shall take the average density of cane-juice at 10° Beaumé, and the amount of its sugar at 18 per cent.; and as the old wine gallon is the measure still in use in the colonies, I shall retain it in the following calculations.

From the foregoing data it follows that 3000 gallons of cane-juice of the density of 10° Beaumé weighs 25,752 lbs., and that they ought to yield 4635 lbs. of dry saccharine extract. This is not to be considered merely as a theoretical formula, or as a result which can be obtained only in the laboratory of the chemist; it is one which can likewise be produced on a large scale, and in every well-arranged boiling-house. It is true, indeed, that the extract which will be produced in the latter case will not consist entirely of crystalllized sugar, for the small portion which will remain when the operation is terminated, will form, in consequence of its combination with a disproportionately large quantity of saline matter, a crumbling mass, that rapidly deliquesces on exposure to the atmosphere. Nevertheless, the whole of the contained sugar will be procured. Any one may satisfy himself that this is practicable if he chooses to take the trouble. The experiment will be most conveniently performed at a low temperature, as *in vacuo;* but this plan is not essential, and sufficiently complete results may be obtained by evaporation and concentration in appropriate vessels over the naked fire and in the open air. After defecation the cane-juice is to be concentrated to the point that indicates its saturation when boiling; the syrup should remain in a state of repose until crystallization is completed. The mother liquor, when separated, should be concentrated to the same point, and the operation is to be repeated until the extract obtained will no longer crystallize; the latter must be dried at a gentle heat, and then the whole must be weighed. The amount will be equal to that indicated by the density of the cane-juice. The quantity of dry uncrystallizable extract will be found to vary at different times, owing to the purity of the cane-juice and its freeness from saline matter; but, generally, if the experiment be successfully performed, it will not exceed five parts in one hundred of the whole.

I do not mention this experiment as a system of manufacture to be followed in the boiling-house; indeed, the difficulties attending its complete performance during the height of crop would be to great, and the benefits that would be derived would not be sufficiently remunerative; I mention it only as a means by which a planter may satisfy himself that the results mentioned above are true, and that they may be obtained on a large scale were it necessary. I have produced in the way of manufacture, from cane-juice of a specific gravity of 1073, one pound four ounces of beautifully crystallized sugar, and three ounces of dry uncrystallized extract, from every wine gallon, which is rather more than 17 per cent.

If the statement made in the foregoing part of the book, that the average quantity of cane-juice expressed by the mills in the different colonies, does not exceed 50 per cent. of the weight of the canes be true, it is evident that the quantity of canes which now yield 3000 gallons of juice, contain in fact 5400, and that, *cæteris paribus*, the amount of

saccharine extract that they ought to produce should be 8343 lbs. instead of 4635 lbs.

Let it be assumed also that the weight of the *stems* of canes grown upon one acre of land is 30 tons, or 67,200 lbs., the quantity of juice (if it be of the above density) which they contain, is 7065 wine gallons, or 60,480 lbs.; and the amount of saccharine extract 10,886 lbs., or four 86-100 tons.

I do not suppose that by any method yet known this result could be obtained on a large scale, and in the way of manufacture; I give the calculation only as a standard whereby we may compare the one at present produced, and thus be able to see the losses sustained. The portion of the loss alone which is not remediable by care and good management is the one that depends upon our imperfect means of expressing the juice. But who is hardy enough to say that such will always be the case? Can no means be invented by which the loss that arises from this cause may be prevented? We should possess a remedy at once, were it satisfactorily proved that the process of M. Michiel could perform what it promises.

I have stated that by paying attention to the mill, the quantity of cane-juice may be increased from 50, the present amount, to 70 per cent.; in which case the juice produced from 30 tons of canes would be 47,040 lbs., and the amount of dry saccharine extract 8467 lbs., or three 78-100 tons; which, when the cane-juice has a density of 10°, is the one which can always be obtained by the means we now possess.

When we extend our inquiries into the results actually obtained in the colonies, such difficulties present themselves, owing to the want of data, as to prevent our forming an opinion with anything approaching to accuracy. We know indeed that a considerable loss is sustained in every case; we know, in a great measure, the causes on which the loss depends; but of the proportionate extent in which each cause separately acts in the production of the entire loss we are wholly ignorant. So unsatisfactory is our knowledge respecting colonial statistics, that the only conclusions that can be arrived at of the capabilities of a sugar estate, or the work performed upon it, are those which are founded upon the gross amount of its produce; and this, set against its current expenses, shows the profit or loss for the year—the only question of this kind which has yet been solved.

We will, however, apply the little knowledge we possess on this truly important subject to two widely different and extreme cases.

Accounts recently received from British Guiana state, that at the beginning of the present crop, 3000 gallons of cane-juice were required to make a hogshead of sugar. The hogshead, on its arrival in England, weighed 15 cwt., or 1680 lbs. nett. It is probable, but not stated, that the quantity of molasses drained from the sugar was about 12 cwt., which—33 per cent. of water contained—gives 900 lbs. as their weight when dry; consequently the entire amount of dry saccharine extract available for the market was 2580 lbs. Let us suppose that the quantity of juice expressed was, as in the former cases, 50 per cent., and that an acre of land yielded 30 tons of canes, the quantity of juice obtained from them, therefore, would be 33,600 lbs., and that of dry extract could not exceed 3500 lbs.

In Barbadoes it is not uncommon to see an acre of canes produce three hogsheads of sugar of 15 cwt. nett, and a proportionate quantity of molasses. We will again suppose, in this case as in the others, that the weight of the canes was 30 tons, and the yield of the juice 50 per cent., the quantity of juice would be 33,600 lbs.; which gave 5040 lbs. of sugar, and three puncheons of molasses—33-100 water=2240 lbs. dry molasses; or a total of 7280 lbs. of dry saccharine extract.

The following table will enable us to compare, at one view, these different results:—No. 1 gives the products of 30 tons of canes, presuming the density of the cane-juice to be 10°; that the whole of it has been expressed, and that the manufacture has been judiciously conducted. No. 2 gives the products of an equal weight of canes: the density of the cane-juice 10°, the quantity expressed 70 per cent., and the manufacture properly performed. No. 3 shows the products presumed to have been obtained in British Guiana at the commencement of the present crop from a similar weight of canes; and No. 4 shows the products obtained from an acre of canes in Barbadoes, the weight of which is likewise presumed to be 30 tons:—

	Weight of Canes.	Weight of Juice.	Weight of Extract.	Amount of Extract per 100 lbs. of Juice.	Amount of Extract per 100 lbs. of Canes.
1	30 tons	60,480 lbs	10,886 lbs	18	16·20
2	30 tons	47,040 lbs	8,467 lbs	18	12·6
3	30 tons	33,600 lbs	3,500 lbs	10	5
4	30 tons	38,600 lbs	7,280 lbs	21·6	10·8

Although the data which have formed the basis for the calculations in the two last lines of the table are as incomplete as they well can be, yet if we confine ourselves simply to the inspection of the different amounts obtained of saleable extract, and of these at least we have sufficient evidence, we cannot but express our astonishment.

The great excess in products which the Barbadoes estate shows over the one in British Guiana cannot, I think it will be admitted, be attributed to any superiority that the old-fashioned vertical wind-mill in use in the former colony has over the well constructed steam-mill of the latter; neither can it be attributed to the greater weight of the canes, for it is not probable, if we are to judge from their size, that the weight of the canes taken from an acre of land in Barbadoes exceeds 30 tons. It cannot be accounted for by the presumption that the Barbadoes sugar-boiler surpasses in skill his brethern of Guiana; for if this were the case, and there is no reason for supposing so, the quality rather than the quantity of sugar would be affected, as in both colonies the same system of manufacture is in force. It may be that many causes which we, from want of accurate information, may not be able duly to appreciate, have been in operation perhaps in both instances, tending either towards good or towards evil in the results produced by them; and we are compelled to believe that the predominant one will be found in the cane-juice—in its richness in the one case, in its poverty in the other. If this cause be a true one, the specific gravity of the cane-juice of the Barbadoes estate must have been as high as 1090—1095, or 12° to 13° Beaume; while in that of Guiana it could not have exceeded 1040, or 5° to 6° Beaume.

It therefore follows that in the latter case, presuming the above supposition correct, the cause of loss would be attributable to the injudicious custom, which, unfortunately, too generally obtains throughout the West India colonies, of cutting the canes without regard to their fitness for the purposes for which they are destined.

It has been explained, I trust in a sufficiently intelligible manner, that during the rapid vegetation of the cane, the saccharine matter is re-absorbed from the cells almost as rapidly as it is deposited in them, and is employed for the purposes of nourishing the plant, and affording materials for the formation of its new parts. To cut the canes when in such a condition indicates either ignorance or carelessness on the part of the person so doing, for the result must necessarily be extremely prejudicial, if we regard it only in the light of an economical management of the property. It is evident that under such circumstances the extract obtained may be

diminished one half, while the evaporation required, and consequently the quantity of fuel, will be in like proportion increased. For instance, let it be supposed that the cane-juice is so rich in its saccharine constituents as to produce 1500 lbs. of crystalline extract, and 500 lbs. of molasses from 1000 gallons, the amount of evaporation to be effected would be about 800 gallons. Whereas, were the cane-juice of a quality similar to that described in the Guiana estate, that is, were it so poor as to yield only the above amount of extract from 3000 gallons, the evaporation demanded must be equal to 2800 gallons, and the quantity of fuel necessary to effect it must be 3½ times greater than in the former case. But the money loss sustained would not be confined to the deficiency of extract obtained, or its inferiority in quality; but it would extend through all the operations of cultivation likewise.

Another source of loss, and one which has been ascertained with tolerable accuracy, although I believe that it has been on the whole undervalued, is that which results from the leakage of the sugar on shipboard. It would appear from the evidence which we possess respecting it, to vary from 10 to 15 per cent., the average being about 12½ per cent.—in money-value, equal to the price of the freight. The loss thus arising is owing to the deliquescent nature of the sugar itself, which depends partly upon the retention of a small quantity of saline matter, partly upon unskilful manufacture, but generally upon the simultaneous action of both causes.

The other causes of loss sustained by the greater number of sugar plantations which have hitherto been ascertained, I have already alluded to; a recapitulation of the whole may, however, be useful. 1. Injudicious cultivation of the canes; 2. the commencement and continuation of the crop when the canes are unsuited to the purposes of manufacture; 3. the imperfect expression of the juice; 4. unskilful manufacture; 5. leakage on shipboard.

The loss produced by each of these causes respectively no doubt varies in every instance, and we have no means by which we can ascertain its amount with accuracy; but the average loss which arises from the action of them all conjointly, may without exaggeration be calculated at cent. per cent.; it is often, indeed, as the preceding table shows, very much more.

The causes, it is true, are in general operation throughout all the sugar-growing countries, and therefore the depressed condition of our colonies cannot be attributed exclusively to their existence. But a due consideration of them would suggest the means of counteracting many of the difficulties incident to the present transition state of West India property.

The first step to be taken for the remedying of an evil, is a close investigation of it, so that we may thereby arrive at a knowledge of its nature. How little in this respect has hitherto been done! It is a subject of such vast importance to the well-doing of our sugar-producing colonies, that every available means should be adopted, with as little delay as possible, for throwing upon it the fullest and clearest light. Every estate should possess a book in which should be inserted the chemical character of the soil, the mode of cultivation pursued, the nature and quantity of manure employed, the weight of canes produced per acre, their description, whether plants, rattoons, age, &c., the quantity of juice expressed by the mill, the density of that fluid and its other peculiarities, if it have any, the amount of sugar and molasses obtained, &c. &c.

I do not suppose that such a measure could be carried out at once—it ought, however, to be commenced immediately, although it be but partially so; neither do I suppose that the whole of the canes are to be weighed as they come to the mill, and the whole of their juice to be

measured; but I mean that samples taken from the different cane fields should be submitted to these trials as frequently as circumstances will permit, so that both the manager and the proprietor may be possessed of information approaching to accuracy respecting matters in which they are so deeply concerned, and in the knowledge of which they are at present lamentably deficient.

The colonial planter will probably answer this proposal by a statement that the labor which he has at his command is inadequate to the calls at present made upon it. He may, moreover, in answer to an appeal made to him with a view to encourage any attempt at the amelioration of his art, (if it is to be accompanied by the sinking of additional capital, however small,) say, that in the state in which he finds himself he can scarcely pay the current expenses of his property, and that until he can feel assured of sufficient labor for every purpose of his cultivation and manufacture on reasonable terms, he can neither have courage, nor inspire those who have the ability to assist him with confidence, to undertake the outlay of capital which, like much of that which is already invested, may prove fruitless.

Without questioning the justness of these views, for it is evident that confidence in the result must be the basis of every investment of capital, it may yet be doubted whether, on the one hand, too much stress has not sometimes been laid upon the admitted deficiency of labor, and on the other, too little consideration has been given to the possibility of finding a remedy in the adoption of better modes of culture, and of improvements in the manufacture of sugar, which are demonstrated to be attainable. There is at least a great variety in the circumstances of the several colonies. In most of them it is perfectly practicable to supersede manual labor to a great extent by the use of the plough and other implements employed in Europe. This change has indeed already made considerable progress; but any hesitation or delay in adopting so obvious a means of economy is quite inexcusable. Wherever this substitution can be effected, and it is nevertheless neglected, there can of course be no ground on which to rest any argument from a deficiency of labor. In some of the colonies, however, it is not everywhere practicable; and one of the most important—British Guiana—is, from the nature of the country, at present wholly dependent upon manual labor.

Of all the West India colonies, the last mentioned has probably been the most forward in pursuing judicious attempts at improvement. A gentleman of the highest scientific attainments has been engaged as agricultural chemist. His first report on thorough drainage has just reached this country, which, for the mass of valuable information contained in it, is alike creditable to the perseverance and talents of the author and the good sense of the inhabitants. Therein is shown the injurious results produced in the staple manufacture, owing to the imperfect system of drainage at present pursued—the impossibility of using the plough or horse-hoe in the cultivation of the soil, the loss in the quantity of sugar obtained, estimated at one ton per acre, and its inferiority in quality, owing to the superabundance of salt in the soil. A small patch of land has been appropriated by the colony for testing the improved results expected to be effected by the system of covered drains, "but no idea is or can be entertained by individual proprietors of introducing it on their estates, owing to its great expense, solely caused by the present price of labor.

Other examples might be given to illustrate the urgent necessity of an adequate supply of labor, and the impossibility of effecting even the most elementary and essential improvements without its aid. But it is presumed that, while undue importance need not be ascribed to the introduc-

tion of laborers as affording the only means of relief, no doubt can be entertained that it is highly expedient to encourage a steady and constant flow of immigration as being eminently calculated to promote the prosperity of the colonies, and prove beneficial to all parties.*

* Dr. Evans devotes the few remaining pages of his work entirely to the West India question, which is not so important to our readers, as we have already published much matter of the kind. In our next, however, we will notice these pages.—EDITOR.

AMERICAN CITIES.

1.—MOBILE.

AMONG the most flourishing of southern ports, is the city of Mobile, and it is gratifying to observe, that, notwithstanding the ruinous laws of the last year to shippers of produce, the aggregate value of exports from Mobile has been more than last year, as follows:

EXPORTS OF MOBILE, YEAR ENDING JUNE 30, 1848.

	1847		1848		Total
	3d qr.	4th qr.	1st qr.	2nd qr.	fiscal year.
In American vessels	1,744,724	1,020,781	2,627,576	2,247,613	7,640,694
In foreign vessels	116,077	150,488	2,507,713	1,510,775	4,287,053
Total	1,860,801	1,171,269	5,137,289	3,758,388	11,927,747

As compared with former years, the results are as follows:

	1842.	1845.	1846.	1847.	1848.
In American vessels	5,937,570	6,615,568	3,159,550	3,197,209	7,640,694
In foreign vessels	4,028,105	3,899,706	2,100,767	5,857,371	4,287,053
Total	9,965,671	10,515,274	5,260,317	9,054,580	11,927,747

This is a gratifying result, as far as aggregate value goes. Of course, the exports are composed almost altogether of cotton, and in spite of the low prices, the value has been comparative in quantity as follows:

EXPORTS OF COTTON TO FOREIGN PORTS FROM MOBILE FOR THE TWO YEARS

	Ended 31st Aug., 1848.			*Ended 31st Aug.*, 1847.		
Where exported.	Bales.	Pounds.	Value.	Bales.	Pounds.	Value.
To Gt. Brit'n, in Am. ships	115,834	58,432,641	$3,762,535 69	30,931	15,038,126	$1,525,096 16
do British ships	112,345	56,443,576	3,783,344 89	98,779	48,132,870.	5,075,779 71
Total to Gt. Britain	228,179	114,876,216	$7,545,680 58	429,710	63,170,996	$6,600,875 87
To France, in Am. ships	57,682	29,064,030	2,047,731 87	36,294	16,675,048.	1,857,637 84
do in French ships,	4,150	2,110,906.	151,147 47	2,999	1,475,640.	147,984 84
Total to France	61,832	31,174,934	$2,198,879 34	39,293	18,150,688	$2,005,622 68
To Spain, in Am. ships*	1,520	755,484	54,473 09	—	—	—
do in Spanish ships	5,409	2,496,631	188,089 79	7,836	3,437,330.	364,220 70
Total to Spain	6,929	3,252,115	$242,562 88	7,836	3,437,330	$364,220 70
To Holland	626	323,758	17,528 67	—	—	—
To Belgium	7,702	3,870,258	274,912 94	—	—	—
To Hamburg	5,102	2,587,538	181,141 06	5,293	2,597,896.	265,753 10
To Sardinia	4,932	2,480,328	150,109 71	—	—	—
To Austria	1,056	524,436	35,899 71	4,036	2,090,596.	209,116 00
To Bremen	2,723	1,371,360	93,448 93	4,053	1,997,642.	203,448 50
Total to other foreign ports	22,141	11,157,673	$753,041 62	13,382	6,596,134	$678,317 60
Grand Total	369,081	160,458,894	$10,740,363 82	190,221	91,355,148	$9,649,036 85

* Including 1,445 bales shipped to Cuba.

The import of foreign merchandise to Mobile, for the six months ending with June, were as follows:

IMPORT INTO MOBILE.

	First qr.		Second qr.			
	Am. vess.	For. vess.	Am. vess.	For. vess.	Total	Duties.
1847	89,339	6,042	15,341	27,510	138,281	36,190
1848	41,811	50,155	16,825	9,703	118,494	31,563

LUMBER.—The trade in lumber is increasing every year—and although our tabular statements furnish a faithful account of all that has been reported at the Custom House, we are convinced they do not embrace more than a moiety of what has left our bay within the last year. Several of the mills on the borders of our navigable streams have contracts for furnishing lumber with New-Orleans and elsewhere, which keep vessels in constant employment in its transportation, and of which we have no regular account. A number of ships have been freighted for Havre, Barcelona, etc., with spars and timber suited to naval purposes, but we have no accurate means of estimating the value of these exports. The trade in lumber is valuable, and from the extent of our forests is capable of almost an indefinite extension. Exports of sawed lumber, agreeably to the tables kept, amount to 7,619,093 feet—previous year, 5,734,134 feet; staves, 562,200; cedar logs, 1,602; timber, pieces, 4,511; spars, 977; masts, 353; deck-plank, 7,228; oars, 5,828; handspikes, 10,596; shingles, 581,388; laths, 122,000.

MISCELLANEOUS.—The exports of corn and flour—considerable quantities of which were shipped hence last year—have been to but a very limited extent the present season. 5,113 sacks of corn, and 678 bbls. flour, is all of which we have any account. Some small quantities may have gone coastwise. There have been shipped for export, 331 bales, and 8,527 loose hides; 1,051 bales rope cuttings; 3 hhds., 85 casks, and 217 bbls. tallow; 35 bales deer skins; 11 bales wool; 6,300 cow horns; 4 casks, 1 tierce and 16 bbls. beeswax; 231 boxes tobacco; 81 hhds and 66 tierces sugar; 147 bbls. tar, (a new article of export;) 210 bbls. potatoes.

2.—MEMPHIS, TENN.

BUSINESS STATISTICS—COMPRISING THE DIFFERENT DESCRIPTIONS OF BUSINESS IN MEMPHIS.

		Capital subject to taxation.	
39	Dry Goods Stores		$466,500
42	Grocery and Produce stores		145,000
7	Clothing stores		48,000
10	Drug stores		50,000
8	Hardware and Cutlery stores		65,000
2	Shoe stores		20,000
1	Hat store		3,000
3	Book stores		20,000
3	Jewellry stores		20,000
1	Queensware store		5,000
2	Cegar and Variety stores		6,000
5	Carriage stores		25,000
5	Wholesale Liquor stores		21,000
4	Furniture stores		23,000
2	Confectionary stores		6,000
1	Music store		5,000
8	Dry Goods and Commission Houses, say	300,000	
19	Grocery " "	500,000	
			800,000
			$1,718,500
4	Auction and Commission Houses, city tax	$200	
2	General Agents, city tax	30	
4	Brokers and Exchange dealers	500	
14	Pealers, city tax	120	
40	Retailers of Liquors, city tax	250	
8	Livery Stables, city tax	250	
109	Drays and Carts, city tax	100	

3.—CHARLESTON.

The following are the tax returns for 1847—1848:

Real estate for 1847	$10,478,361 a 50	$52.396 80
Sales	12.035,237 a 15	18,127 85
Stock in trade	3.426,000 a 1 p. c	34 26
Income	763,680 a 50	3,818 44
Income on exchange	48,988 a 60	293 93
Slaves over twelve years	9,012 a $2½	22,530 00
Slaves under twelve years	2,924 a $1¼	3,655 00
Sale slaves, from out state	1 a $3	3 00
Sale slaves, private sale	186,200 a 37½	698 25
{ Coaches	143 a $25	3,575 00
{ Coaches	45 a $12½	562 00
{ Carriages	157 a $15	2.355 00
{ Carriages	12 a $7½	90 00
Chairs	20 a $10	200 00
{ Horses	598 a $5	2,990 00
{ Horses	124 a $2½	310 00
Sale horses at, private sale	5,264 a 1 p. c	52 64
Dogs	472 a $3	1,416 00
Free persons of color—females, from 14 to 18	43 a $3	129 00
from 18 to 50	358 a $5	1,790 00
males, from 16 to 21	56 a $5	280 00
laborers and mechanics	208 a $10	2,080 00
		$117,387 67
Increase in 1848		693 85
		$118,081 52

Real estate for 1848	$10,534,198 a 45	$47.403 86
Real estate for '46–'47	320,000 a 50	160 00
Sales for 1848	1,803,826 a 15	2,705 23
Stock in trade	2,848,916 a 55	15,669 04
Stock in trade, transient	2,275 a 1 p. c	22 75
Gross profit or income	729,470 a 60	4,376 82
Income	323,788 a 1 p. c	3,237 88
Premium or insurance	93,229 a 60	559 37
Slaves	11,852 a $2¼	26,667 00
Slaves from out the state	16 a $3	48 00
Slaves at private sale	198,165 a 37½	743 11
Profit on brokerage	81,661 a 60	489 96
{ Coaches	140 a $25	3,500 00
{ Coaches	42 a $12½	525 00
{ Carriages	162 a $15	2,430 00
{ Carriages	18 a $7½	135 00
{ Chairs	16 a $10	160 00
{ Chairs	1 a $5	5 00
{ Horses	606 a $5	3,030 00
{ Horses	115 a $2½	287 50
Dogs	477 a $3	1,431 00
Free persons of color—females, from 14 to 18	45 a $3	135 00
from 18 to 50	366 a $5	1,830 00
males, from 16 to 21	64 a $5	320 00
laborers and mechanics	221 a $10	2,210 00
		$118,081 52
Increase in 1848		693 85

4.—IMPORTS INTO ST. LOUIS.

We give below a comparative table, showing the receipts of the principal articles of produce and groceries, at the landing in this city, from the 1st of January to the 1st of July, for the years 1846, 1847, and 1848, which we make up from our files, and which we believe to be as nearly correct as can be arrived at. In it is not included the direct shipments of produce from points above for New-Orleans and the Ohio river, or any that is brought in by wagons; consequently, it does not exhibit by any means all that is brought into our market. Had we any

means of ascertaining, with any degree of accuracy, the amount of export from this city, it would exhibit a much larger amount, and more satisfactory evidence of the extent of our trade.—[*Western Journal.*

	1848.	1847.	1846.
Tobacco, hhds	4,701	3,460	5,338
Hemp, bales	24,831	59,647	21,282
Lead, pigs	338,618	358,528	420,252
Flour, barrels	150,979	235,374	113,316
Wheat, bushels	938,252	1,644,429	1,200,871
Corn, bushels	240,028	844,673	427,259
Oats, bushels	161,010	162,665	—
Rye, bushels,	3,840	2,212	3,247
Barley, bushels	65,036	28,198	13,641
Beans, barrels	2,340	3,200	2,283
Sacks	1,267	2,382	700
Flaxseed, bbls	6,418	3,555	1,790
Fruit,* bbls	5,697	7,550	3,374
Sacks	2,960	8,361	1,088
Potatoes, bbls	900	1,820	2,733
Sacks	47,420	19,330	19,906
Pork, bbls	68,455	35,992	43,621
Half bbls	943	250	39
Beef, tierces	3,415	1,162	—
Bbls	2,295	2,386	12,202
Half bbls	—	192	126
Bacon,† casks and tierces	26,505	11,450	9,052
Bbls and boxes	4,481	1,090	457
Bulk meat,† lbs	6,625,244	2,522,418	700,430
Lard, tierces	3,482	—	—
Bbls	70,912	28,293	23,537
Kegs	9,544	7,175	12,269
Butter, bbls	666	610	547
Kegs, firkins, &c	1,946	1,290	1,565
Cheese, casks	22	53	270
Boxes	3,142	2,379	5,463
Tallow, tierces and casks	121	40	105
Bbls	287	171	916
Beeswax, bbls	325	315	338
Packages	382	460	374
Beef hides	40,443	42,836	50,267
Whiskey, bbls	17,065	13,638	15,705
Sugar, hhds	17,500	8,136	8,042
Bbls and boxes	5,784	11,517	2,493
Molasses, hhds. and tierces	153	368	—
Bbls	19,215	4,707	8,580
Coffee, bags	33,556	30,296	42,913
Salt,‡ sacks and bags	118,472	58,150	70,682
Bbls	14,379	11,602	35,135

* Including green and dried apples and dried peaches.
† Including bacon and pork in salt.
‡ Including Liverpool, Turk's Island, Cadiz, &c.

5.—CINCINNATI.

The progress and present condition of the Queen City of the West, are thus briefly stated in a letter to the N Y. Evening Post:

"Cincinnati is situated on the Ohio, 494 miles from its mouth, and 455 miles from Pittsburg. It extends three miles along the river, and two back from the water. The city is regularly laid out. Many of the streets are adorned by fine edifices, and shaded by beautiful trees. The population of Cincinnati in 1820 was 10,000; in 1830, 24,831; in 1840, 46,338; and at the present time it is more than 100,000. The city contains 72 Churches, an Astronomical Observatory, 3 Colleges, 4 Medical Schools, 1 Law School, and numerous Female Seminaries and Classical Schools. 13 daily, 25 weekly, and 4 monthly periodicals are published here. There are in Cincinnati several extensive Foundries, numerous Cotton and Woollen Factories, and manufactories of almost every kind. But the bu-

siness in which Cincinnati excels every other place is Pork-packing: 487,049 hogs were packed here during the last year—412,000 of which were killed in the city. Supposing their average weight was 200 lbs., their total weight would be nearly 100,000,000 lbs., which, if equally distributed, would give every man, woman, and child in the United States, each five pounds of pork. Just back of the city lies a range of hills, which are crowned by two beautiful villages, Mount Auburn, and Walnut Hills Being about 200 or 300 feet above Cincinnati, the situation of these villages is exceedingly beautiful. They overlook the city, and the river for several miles above and below Cincinnati, and Newport and Covington on the opposite shore, in Kentucky. Walnut Hills is the seat of a flourishing Theological Seminary of the New School Presbyterian Church, the President of which is the venerable Lyman Beecher, D. D. Mount Auburn is principally composed of the residences of men doing business in the city. The cottages and dwellings in this village are, many of them, very elegant buildings. The grounds about them are highly adorned, though there is very little of shrubbery that is merely ornamental. The useful and the beautiful are combined in the pear, the peach, the plum, the apple, and the vine."

COMMERCE OF CINCINNATI.

The following is an exhibit of the Imports and Exports of leading articles into and from Cincinnati in the last and previous year, ending August 31.

IMPORTS.	1847–8.	1847–6.
Corn, bush	361,315	896,258
Corn meal, bush	29,542	56,775
Cheese, casks	164	483
Cheese, boxes	138,800	120,301
Cotton, bales	13,476	12,528
Coffee, sks	80,242	59,339
Flour, brls	151,518	515,506
Lard, brls	37,978	21,991
Lard, kegs	41,714	22,722
Molasses, brls	51,001	27,216
Oats, bush	194,557	372,427
Pork and bacon, hhds	4,420	5,476
Pork, tcs	140	124
Pork, brls	69,828	40,581
Pork, in bulk, lbs	9,643,063	8,027,399
Sugar, hhds	27,153	16,649
Sugar, brls	11,175	7,196
Sugar, boxes	2,928	5,179
Wheat, bush	670,813	590,809
Whiskey, brls	170,436	184,639

EXPORTS.	1847–8.	1847–6.
Beef, brls	14,811	10,367
Beef, tierces	3,615	7,990
Butter, brls	2,937	1,348
Butter, kgs	28,315	31,194
Corn, sacks	53,021	258,198
Corn meal, brls	19,999	88,882
Cheese, bxs	59,379	70,104
Cotton, bales	6,123	5,019
Coffee, sks	18,587	13,037
Flour, brls	201,012	581,920
Lard, brls	81,679	49,878
Lard, kgs	208,606	150,823
Oats, sacks	41,675	140,067
Pork and bacon, hhds	37,162	31,528
Pork and bacon, tierces,	8,862	7,894
Pork and bacon	186,886	137,218
Pork, bulk, pounds	4,759,188	3,478,856
Sugar, hogsheads	11,559	4,998
Tallow, barrels	5,689	4,543
Whiskey, barrels	186,509	183,928

6.—FIRST RECEIPTS OF COTTON AT NEW-ORLEANS.

The *Concordia Intelligencer* furnishes the following. We beg the able editor not to suppose for an instant that our neglecting to credit Col. Clairborne's statistics of the War Department was intentional. Our regards for the *Intelligencer* are of too high a nature.

1823	Sept. 20	4 bales.	
1824	July 30	1	
1825	Aug. 28	10	
1826	Aug. 15	17	
1827	Sept. 15	33	
1828	" 7	6	
1829	" 19	2	
1830	" 18	13	
1831	" 10	4	
1832	Aug. 18	3	
1833	" 24	1	
1834	" 28	28	
1835	" 29	1	
1836	Aug. 24	1 bales.	
1837	" 20	1	
1838	" 26	1	
1839	" 5	5	
1840	" 9	1	
1841	July 31	1 or more.	
1842	" 25	1	"
1843	Aug. 17	1	"
1844	July 23	4	
1845	" 30	1	"
1846	Aug. 7	7	
1847	" 9	2	
1848	" 5	1	

7.—NEW-ORLEANS VITAL STATISTICS.

Our friend, Dr. Fenner, of this city, who has been preparing some able and most laborious articles for the *Medical Journal* upon Yellow Fever, furnishes the following statistics. They are taken from the books of the Charity Hospital, which he considers "the most extensive fever hospital in the world."

ADMISSION IN THE CHARITY HOSPITAL.

1841.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Intermittent Fever,....	3	27	35	39	28	65	187	151	18	66	93	72	794
Yellow Fever.....	—	—	—	—	—	—	—	174	642	252	37	8	1113
1842.													
Intermittent Fever,....	45	29	35	39	45	124	160	169	144	140	110	61	1092
Remittent Fever,.....	4	—	1	3	4	8	12	34	41	35	11	3	155
Yellow Fever,.....	—	—	1	—	—	—	47	247	93	23	—	—	416
1843.													
Intermittent Fever,....	31	30	35	31	19	40	70	98	128	136	149	76	843
Remittent Fever,.....	1	—	—	1	—	9	40	75	49	12	8	10	205
Yellow Fever,.....	—	—	—	—	—	—	23	188	365	351	111	15	1053
1844.													
Intermittent Fever,....	66	49	41	32	44	75	176	258	255	261	216	116	1589
Remittent Fever,.....	2	4	2	1	4	24	30	47	67	55	5	3	244
Yellow Fever,.....	2	2	—	—	—	1	1	1	68	52	25	—	152
1845.													
Intermittent Fever,....	7	75	57	44	79	112	145	96	279	196	189	124	1403
Remittent Fever,.....	2	1	—	1	11	17	38	34	33	17	—	—	154
Typhoid Fever,.....	7	6	5	2	10	8	11	14	18	20	15	23	139
Yellow Fever,.....	1	—	—	—	—	—	—	—	—	—	—	—	1
1846.													
Intermittent Fever,....	79	58	75	76	85	138	214	227	359	376	310	81	2078
Remittent Fever,.....	3	3	5	—	7	6	2	9	22	36	7	3	103
Typhoid Fever,.....	30	13	7	5	10	12	14	17	5	7	23	52	195
Yellow Fever,.....	—	—	—	—	—	—	—	—	29	83	32	4	148
1847.													
Intermittent Fever,....	144	117	98	153	140	211	223	74	53	258	380	341	2192
Remittent Fever,.....	4	1	4	9	17	38	69	64	25	12	18	8	269
Typhus and Typhoid,..	40	23	54	180	231	389	64	3	1	10	160	347	1502
Yellow Fever.....	—	—	—	—	—	5	148	1611	777	219	49	2	2811

Whole number of diseases admitted into the Hospital, 1841, 4380; of fevers, 1991. 1842, 4404; of fevers, 1758. 1843, 5013, 2222. 1844, 5846, 2207. 1845, 6136, 1763. 1846, 8044, 2603. 1847, 11,890, 6901 fevers.

COMMERCE OF AMERICAN CITIES.

I.—NEW-ORLEANS.

At the close of another commercial year we proceed to digest, from all the sources within our reach, the commercial results presented by New-Orleans for 1847-48. We shall still find much for proud gratulation.

The following tables are from the admirable publication of the *Prices Current*:—

IMPORTS INTO NEW-ORLEANS, FROM THE INTERIOR, FOR TEN YEARS, FROM THE 1st SEPTEMBER TO THE 31st AUGUST, IN EACH YEAR.

Articles.	1847-8.	1846-7.	1845-6.	1844-5.	1843-4.	1842-3.	1841-2.	1840-1.	1839-40.	1838-9.
Apples.....bbls	39518....	39612....	26775....	26515....	43969....	67803....	26443....	27244....	24387....	6724
Bacon, asst. casks, &c.	45119....	36932....	25213....	12892....	19563....	16568....	13505....	11231....	7350 ...	13648
Bacon Hams.....hhds	18539....	14518....	12092....	8358....	19070....	13588....	9220....	6111....	4412....	6249
Bacon in bulk.....lbs	381140....	425163....	492700....	350000....	1203321....	1453798....	1288109....	2593057....	1117987....	1501900
Bagging.....pieces	77682....	60982....	96601....	111324....	100216....	89721....	60307....	70976....	66898....	49697
Bale Rope.....coils	74325....	56201....	56678....	67600....	83684....	80932....	63307....	65613....	47970....	62602
Beans.....bbls	20485....	24536....	16585....	7006....	7619....	8878....	10993....	14281....	2026....	405
Butter.....kegs	45213....	51384....	44172....	30319....	18831....	18530....	11791....	14074....	10429....	7557
Butter.....bbls	1156....	872....	1494....	396....	500....	894....	284....	698....	790....	429
Beeswax.....bbls	698....	1109....	1200....	1464....	1911....	985....	343....	306....	182....	155
Beeswax.....lbs	3550....	3100....	4920....	.....	510....	2677....	3360....	16069....	10573....	4250
Beef, bbls and tierces.	50260....	53968....	62231....	32674....	49363....	17549....	17455....	33262....	10343....	10773
Beef, dried.....lbs	56100....	49000....	98200....	58200....	55610....	51400....	60312....	70100....	39120....	38090
Buffalo Robes...packs	14....	55....	1031....	1915....	5445....	5135....	3122....	2587....	5447....	4035
Cotton. La. and Mi., bales.	883144....	453842....	765315....	688244....	627769....	824045....	583328....	677343....	747894....	469231
Cotton. Lake.....bales	13734....	4356....	14276....	19533....	13234....	14280....	8967....	5163....	14960....	12156
Cotton. N. Ala. & Ten. do.	227561....	211502....	222677....	198246....	169334....	191410....	118629....	118122....	155466....	69347
Cotton. Arkansas.....do.	64294....	35279....	34876....	23103....	21835....	30511....	16734....	11149....	13767....	7003
Cotton. Mobile.....do.	10857....	16379....	6356....	12123....	47596....	10687....	4565....	5881....	15649....	16768
Cotton. Florida.....do.	4208....	16966....	5884....	12830....	12016....	3381....	2831....	731....	2727....	1080
Cotton. Texas.....do.	10007....	2345....	4249....	25159....	18170....	15328....	5101....	4481....	3932....	2929
Corn Meal.....bbls	47543....	88159....	3905....	7917....	3769....	5415....	6023....	2214....	1447....	3032
Corn in ears.....bbls	509583....	619756....	358578....	139686....	165354....	255058....	240675....	168050....	152965....	161918
Corn, shelled...sacks.	1083465....	2386510....	1166120....	390964....	360052....	427552....	338709....	268557....	278358....	338795
Cheese.....boxes	52362....	57429....	57392....	39091....	12583....	3502....	2710....	1852....	428....	319
Candles.....boxes	16750....	8496....	10461....	5170....	3913....	1201....	3593....	425....	390....	34
Cider.....bbls	344....	477....	135....	385....	1419....	1026....	1130....	544....	524....	184
Coal, western....bbls	320000....	356500....	262800....	281000....	227788....	255563....	140582....	221233....	99915....	94362
Dried Peaches....bbls	385....	3009....	137....	474....	1112....	718....	863....	483....	18....	32
Dried Apples.....bbls	1173....	5761....	930....	1758....	889....	958....	1115....	1041....	740....	.....
Flaxseed.....tierces	4393....	962....	823....	2181....	4273....	13480....	863....	742....	723....	316
Flour.....bbls	705958....	1617675....	837985....	533312....	502507....	521175....	439688....	496194....	482523....	434984
Furs.....boxes	91....	75....	28....	118....	43....	37....	45....	32....	16....	12
Furs.....bundles	320....	253....	609....	581....	496....	326....	1792....	1733....	1121....	301
Feathers.....bags	2594....	3498....	4607....	5403....	4568....	1484....	1737....	470....	489....	457
Hemp.....bales	21584....	60238....	30980....	46274....	38062....	14873....	1211....	450....	500....	4044

	1847-8.	1846-7.	1845-6.	1844-5.	1843-4.	1842-3.	1841-2.	1840-1.	1839-40.	1838-9.
						45957....	26169....	25522....	29962....	19582
									18666....	27450

Articles.	1847-8.	1846-7.	1845-6.	1844-5.	1843-4.	1842-3.	1841-2.	1840-1.	1839-40.	1838-9.
Hides	47662	98342	112913	117863	76490	45957	26169	25522	29962	19582
Horns	12500	9600	700	8300	3870	1700	700	2480	18666	27450
Hay.....bales	61934	95231	71270	37296	35132	28059	20166	21425	7603	9915
Iron, Pig.....tons	701	1151	1083	207	100	211	322	512	1001	411
Lard.....hhds	459	143	45	167	212	1433	74	74	146	313
Lard.....bbls	216031	117077	107639	60078	119717	104540	18207	9672	5007	8620
Lard.....kegs	303661	275076	334969	245414	373341	307871	366694	311710	177303	218387
Lime, western...bbls	14920	5994	8387	6233	3767	1159	830	2406	1020	900
Lead.....pigs	606966	650129	785394	732125	639269	571949	472556	434467	307397	309528
Lead, bar.....kegs	787	1291	1431	788	851	701	1084	601	863	807
Lead, white.....kegs	9203	11636	7853	888	30	50	592	.....	.....	....
Molasses.....bbls	159460	91710	132363	105086	64852	66183	69104	.....	.....	....
Oats.....bbls & sks	467217	588337	269386	144262	130432	120430	63281	54250	42885	38708
Onions.....bbls	7960	7185	6979	7499	6443	4614	3338	6457	2871	441
Oil, linseed.....bbls	2327	3637	1135	1356	2260	1356	305	414	195	180
Oil, castor.....bbls	1199	1439	2379	3385	2757	4976	3666	1115	669	357
Oil, lard.....bbls	5401	2573	2606	2413	2647	1818	.....	.....	.....	....
Peach Brandy...bbls	4	72	54	46	49	72	267	147	9	51
Pickles...kegs & bbls	505	648	1316	218	1154	445	140	157	427	611
Potatoes.....bbls	151861	142888	107058	53779	56587	48060	26201	28468	21469	6254
Pork.....bbls	356480	302170	369601	216960	412928	204643	244442	216974	120908	166071
Pork.....hhds	14201	9452	9988	6741	8800	2371	946	763	1067	1160
Pork, in bulk....lbs	13564430	8450700	9740752	4079600	7792000	6814750	4051800	9744220	5099987	7192156
Porter and Ale..bbls	3492	1363	231	86	604	1050	514	2133	106	324
Packing Yarn...reels	3333	2193	1180	1104	1164	1465	2099	509	842	1040
Skins, Deer...packs	1361	1784	4364	2729	1939	1496	3219	1650	2200	3183
Shot.....kegs	5258	3992	3103	4105	4714	1588	3416	6501	1442	1345
Sugar.....hhds	128112	82011	93109	93288	51816	65036	50920	.....	.....	....
Soap.....bxs	5580	4361	3633	6076	7399	2627	1932	150	66	300
Shingles.....	60000	147000	13000	144000	361561	147000	114000	155000	537000	80000
Staves.....2000000	2000000	5679000	2500000	1362678	1165400	425000	736600	1000000	1700000	
Tallow.....bbls	4357	6658	8255	7828	7323	6995	5071	937	200	748
Tobacco, leaf...hhds	55832	55588	72896	71493	82435	92509	67555	53170	43827	28153
Tobacco, chew..kegs	6390	3930	3040	5309	7695	4902	3618	3935	912	1856
Tobacco.....bales	118	1001	1105	3799	4771	3008	3298	1226	280	1386
Twine.....bundles	2264	1285	734	1951	2099	1903	1175	1009	993	912
Whiskey.....bbls	135333	126553	117104	97651	86947	83597	63345	73873	55857	29353
Window Glass..boxes	4260	3805	2811	3071	2066	2342	2761	760	2363	2732
Wheat. bbls and sacks	149181	833649	403786	64759	86014	118248	134886	2621	63015	17280

VALUE OF PRODUCE OF THE INTERIOR.

A TABLE *showing the receipts of the principal articles from the interior, during the year ending 31st August, 1848, with their estimated average and total value.*

Articles.	Amount.	Average.	Value.
Apples.....bbls	39,518	$3 00	$118,554
Bacon, assorted. hhds and casks.....	28,909	32 00	925,088
Bacon assorted...bxs	16,210	20 00	324,200
Bacon Hams.... hhds and tierces.....	18,539	45 00	734 255
Bacon, in bulk... lbs.	381,140	4	15.245
Bagging .....pieces	77,682	13 00	1,009,866
Bale Rope.....coils	74,325	10 00	743,250
Beans.....barrels	20,485	2 50	51,212
Butter.....kegs and firkins.....	45,213	5 00	226,065
Butter.....barrels	1,156	20 00	23,120
Beeswax.....barrels	698	40 00	27.920
Beef.....barrels	35,598	8 00	284,784
Beef.....tierces	14,662	14 00	205 268
Beef, dried .....lbs	56,100	6	3,366
Buffalo Robes . packs	14	65 00	910
Cotton .....bales.	1,213,805	29 00	35,200,345
Corn Meal..... bbls	47,543	2 00	95,086
Corn, in ear..... bbls	509.583	60	305,749
Corn, shelled ..sacks.	1,083,465	1 10	1.192,009
Cheese.....bxs	52.362	3 00	157,086
Candles.....bxs	16,750	4 00	67,000
Cider..... ....bbls	344	3 00	1,032
Coal, western....bbls	320,000	60	192,000
Dried Apples and Peaches.....bbls	1,585	2 50	3.962
Feathers.....bags	2.594	20 00	64,800
Flaxseed.....tierces	4,393	9 00	39,537
Flour .....bbls	706,958	5 00	3,534,790
Furs, hhds. bundles and boxes.....	410	....	650,000
Hemp, ...bales	21,584	19 00	410,096
Hides	47,662	1 25	59,575
Hay,..... .... bales	61,934	2 75	170,317
Iron. pig..... ....tons	701	30 00	21,030
Lard..... .....hhds	459	60 00	27,540
Lard.....bbls and tcs	216,031	17 00	3,672,527
Lard ....kegs	303,661	3 00	910,983
Leather .....bundles	6.316	20 00	126,320
Lime, western....bbls	14,920	1 00	14,920
Lead.....pigs	606,966	2 80	1,695,504
Lead. bar. ..kegs and boxes	787	16 00	$ 12,292
Molasses, (estimated crop) .....glls.	12,000,000	16	1,920,000
Oats....bbls & sacks	467 219	75	350,415
Onions .....bbls	7,960	2 00	15,920
Oil, linseed.....bbls	2 327	20 00	46,540
Oil, castor ..... bbls	1,199	25 00	29,975
Oil, lard.....bbls	5,401	20 00	108,020
Peach Brandy... bbls	4	15 00	60
Potatoes. .....bbls	151,861	2 00	303,782
Pork..... ....bbls	356,480	8 50	3,030,080
Pork ....hhds	1,421	35 00	497,035
Pork, in bulk....lbs.	13,564 430	3	406,932
Porter and Ale. .bbls	3.492	7 00	24,444
Packing Yarn...reels	3,333	7 00	23,331
Skins, Deer.....pks	1,361	20 00	27,220
Skins, Bear.....pks	22	15 00	330
Shot.....kgs	5,258	18 00	94.644
Soap.....bxs	5,580	2 50	13,950
Staves.....M	2,000	40 00	80,000
Sugar, ..(estimated crop) ..... hhds	240,000	40 00	9,600,000
Spanish Moss...bales	3,406	4 00	13,624
Tallow.....bbls	4,357	18 00	78,426
Tobacco, leaf... hhds	47,882	55 00	2,633,510
Tobacco, strips..hhds	8,000	90 00	720,000
Tobacco, chewing, kegs and boxes..	6,390	12 00	76,680
Tobacco.....bales	118	3 00	354
Twine. ... bundles and boxes.....	2,132	11 00	23.450
Vinegar.... ....bbls	1,199	4 00	4.796
Whiskey.....bbls	135,333	7 00	947,331
Window Glass....bxs	4,260	4 00	17.040
Wheat....bbls & sks	149,181	1 80	269.659
Other various articles—estimated at			5,000,000
Total Value.....			$79,779,151
Total in 1846-47.....			90,033,256
Total in 1845-46			77,193,464
Total in 1844-45.....			57,199,122

EXPORTS OF SUGAR AND MOLASSES, FROM NEW-ORLEANS, FOR FIVE YEARS, (UP THE RIVER EXCEPTED,) FROM 1ST SEPTEMBER TO 31ST AUGUST.

Whither Exported.	1847-48. Sugar. hhds.	1847-48. Sugar. bbls.	1847-48. Molasses. hhds.	1847-48. Molasses. bbls.	1846-47. Sugar. hhds.	1846-47. Sugar. bbls.	1846-47. Molasses. hhds.	1846-47. Molasses. bbls.
New-York.....	36053	2600	5747	31225	16754	802	2842	15861
Philadelphia.....	19808	1512	117	10871	11653	653	60	4512
Charleston, S. C.....	3355	539	....	6660	3147	647	....	3238
Savannah.....	806	....	118	2334	1352	58	....	1742
Providence & Bristol, R. I..	....	....	1043	602	....	....	....	....
Boston.....	3674	869	1177	5067	695	43	22	413
Baltimore.....	11149	3258	1522	12002	5981	395	337	3348
Norfolk..... ..... Richmond & Petersb'rg, Va	6888	861	....	7121	4806	966	252	3225
Alexandria, D. C.....	230	....	....	112	156	....	....	511
Mobile.....	5310	1604	....	9645	3783	1088	....	6497
Apalachicola and Pensacola.	173 8	426	....	3984	1415	173	....	2565
Other Ports.....	171	273	2142	1015	371	76	540	286
Total.....	89182	11942	11866	90638	50113	5451	4053	42208

Whither Exported	1845-46. Sugar. hhds.	1845-46. Sugar. bbls.	1845-46. Molasses. hhds.	1845-46. Molasses. bbls.	1844-45. Sugar. hhds.	1844-45. Sugar. bbls.	1844-45. Molasses. hhds.	1844-45. Molasses. bbls.	1843-44. Sugar. hhds.	1843-44. Sugar. bbls.	1843-44. Molasses. hhds.	1843-44. Molasses. bbls.
New-York	33068	2448	3002	17515	49442	6794	9875	34322	11422	217	1882	15744
Philadelphia	21804	2421	580	13925	21392	1422	2418	11575	8478	697	354	4214
Charleston, S. C.	3412	1198	2	6328	4426	95	....	5610	1502	....	....	5467
Savannah	1062	65	....	2214	782	10	....	2686	483	....	....	1254
Providence and Bristol, R. I.	....	....	579	280	....	....	1472	1051	....	....	475	55
Boston	3208	1288	318	1402	6062	543	2124	14221	217	....	....	1001
Baltimore	9143	1672	185	5181	12564	480	547	10943	5492	42	586	5231
Norfolk	3997	1215	27	3767	4500	208	96	6029	502	....	....	2039
Richmond and Petersburg, Va.									1500	1	....	1581
Alexandria, D. C.	175	....	....	428	201	....	95	84	280	....	....	350
Mobile	5739	1020	10	13464	3534	668	76	5218	3257	17	....	2836
Apalachicola and Pensacola	1067	158	....	2039	838	102	....	1795	1070	548	....	2440
Other Ports	533	8	....	671	760	239	391	881	42	22	112	750
Total	83208	11493	4703	67214	104501	10561	17094	94415	33395	1544	3409	42962

EXPORTS OF FLOUR, PORK, BACON, LARD, BEEF, LEAD, WHISKEY AND CORN, FOR THREE YEARS, FROM 1ST SEPTEMBER TO 31ST AUGUST.

Ports.	1847-48. Flour. Bbls.	Pork. Bbls.	Bacon. Hhds.	Lard. Kgs.	Beef. Bbls.	Lead. Pigs.	Whiskey Bbls.	Corn. Sks.
New-York	80040	103885	10542	299871	6662	358989	9785	262333
Boston	210545	104290	5655	391690	8523	144181	687	268501
Philadelphia	26452	15920	5482	59998	575	79438	4226	6967
Baltimore	50	31439	6028	74947	1528	10431	5364	....
Charleston	6235	2328	4218	9777	311	35	12419	6937
Other coastwise ports	39635	13241	11865	13203	2725	....	37977	59007
Cuba	14038	2134	918	132407	427	....	....	59486
Other foreign ports	94624	45126	1356	413603	20630	1755	562	560630
Total	472519	318363	46054	1395496	41381	594829	71020	1223861

Ports.	1846-47. Flour. Bbls.	Pork. Bbls.	Bacon. Hhds.	Lard. Kgs.	Beef. Bbls.	Lead. Pigs.	Whiskey Bbls.	Corn. Sks.
New-York	63877	77828	3480	209945	9167	339560	8210	107890
Boston	96507	76755	2379	16513	9053	123917	1162	139678
Philadelphia	13296	5247	852	53377	564	135489	4856	15324
Baltimore	3637	17167	1159	25251	556	9962	7102	3253
Charleston	37720	1004	2875	5362	150	465	8180	800
Other coastwise ports	8381	11033	11092	12813	2943	1000	33005	43842
Cuba	43051	1092	1015	144002	467	149	...	133798
Other foreign ports	1053037	40394	3053	293714	29096	13716	743	2076228
Total	1319506	230520	25904	907977	51996	624258	63259	2520813

Ports.	1845-46. Flour. Bbls.	Pork. Bbls.	Bacon. Hhds.	Lard. Kgs.	Beef. Bbls.	Lead. Pigs.	Whiskey Bbls.	Corn. Sks.
New-York	83854	88228	2873	204323	5162	369681	4098	172186
Boston	122148	89164	846	190504	3591	139364	150	289523
Philadelphia	250	29783	1238	69153	99	70113	647	3671
Baltimore	....	19523	729	39619	446	11961	2175	1000
Charleston	11476	2828	1962	5677	275	4620	8982	87953
Other coastwise ports	68441	13434	12720	20671	4490	8460	41869	175582
Cuba	7094	1005	610	92336	391	....	....	....
Other foreign ports	279931	28354	64	168621	43798	174086	260	211574
Total	573194	272319	21042	790904	58162	718285	58181	941589

☞ In the above, the Exports to Mobile, &c., via the Pontchartrain Railroad and New Canal, are included.

MONTHLY ARRIVALS, OF SHIPS, BARKS, BRIGS, SCHOONERS, AND STEAMBOATS, FOR FIVE YEARS, FROM 1ST SEPTEMBER TO 31ST AUGUST.

Months.	1847-48. Ships.	Barks.	Brigs.	Schrs.	St. Ships	Total.	S. Boats.	1846-47. Ships.	Barks.	Brigs.	Schrs.	St. Ships	Total.	S. Boats.
September	17	13	15	41	6	92	184	37	12	19	42	7	117	141
October	43	27	18	44	12	144	288	78	30	31	80	7	226	177
November	146	45	31	62	15	299	266	67	35	63	63	9	237	281
December	99	61	66	72	14	312	311	72	45	62	43	8	230	337
January	102	82	74	97	18	373	349	78	64	91	99	6	338	346
February	97	60	59	74	16	306	316	42	34	63	85	5	229	298
March	97	50	47	82	17	293	327	83	53	72	105	1	314	317
April	72	42	40	68	11	233	250	86	41	45	86	6	264	293
May	90	42	35	96	22	285	229	77	51	87	166	11	392	284
June	88	39	33	49	20	229	171	51	38	54	101	19	263	251
July	68	34	24	59	26	211	152	53	30	52	67	16	218	174
August	36	14	20	51	29	150	134	45	18	24	52	14	153	125
Total	955	509	462	795	206	2927	2977	769	451	663	989	109	2981	4024

Months.	1845-46. Ships.	Barks.	Brigs.	Schrs.	Total.	S. Boats.	1844-45. Ships.	Barks.	Brigs.	Schrs.	Total.	S. Boats.
September	24	7	7	14	52	164	26	9	12	8	55	120
October	86	25	20	26	157	234	69	16	14	6	105	165
November	81	22	33	39	175	220	74	25	29	28	156	233
December	80	49	48	42	219	245	83	39	37	29	188	289
January	67	77	74	62	280	298	118	48	57	48	271	279
February	29	21	36	50	136	293	52	44	56	52	204	272
March	67	24	33	32	156	299	93	40	62	49	244	281
April	110	40	47	37	234	294	78	34	48	34	194	242
May	60	30	27	61	178	271	32	19	12	25	88	228
June	44	25	42	30	141	184	52	12	6	14	84	168
July	52	24	39	61	176	151	23	8	8	12	51	154
August	43	33	41	64	181	117	18	3	10	11	42	99
Total	743	377	447	518	2085	2770	718	297	351	316	1682	2530

Months.	1843-44. Ships.	Barks.	Brigs.	Schrs.	Total.	S. Boats.
September	22	7	14	27	70	104
October	55	13	21	25	114	178
November	117	36	53	36	242	230
December	81	43	49	57	230	309
January	65	24	42	47	178	292
February	73	32	37	40	182	278
March	69	25	40	38	172	270
April	82	29	54	39	204	262
May	46	22	30	32	130	236
June	29	16	16	25	86	188
July	10	5	12	10	37	120
August	16	4	8	13	41	103
Total	665	256	376	389	1686	2570

COMPARATIVE STATEMENT OF THE RECEIPTS, EXPORTS AND STOCKS OF COTTON, AT THE FOLLOWING PLACES AT THE DATES ANNEXED.

Ports.		Stocks on hand Sept. 1. 1847.	1846.	Received since 1st Sept. 1847.	1846.
New-Orleans	August 31	23,493	6,332	1,188,733	707,324
Mobile	August 22	24,172	7,476	436,930	322,750
Savannah	August 24	7,787	5,922	241,065	233,790
Charleston	August 25	29,655	8,709	260,223	348,976
Florida	August 12	2,108	1,088	150,817	127,9 8
Virginia and N. Carolina	August 12	488	200	7,598	17,203
Texas	August 29	32	1,500	39,742	9,500
New-York	August 14	83 259	46,539	....	....
Other Ports	August 12	26,682	20,950	....	....
Total Bales		197,636	98,716	2,325,108	1,767,461
Total to dates, 1846-7		98,716	....	1,767,461	....
Increase this year		98,920	....	557,647	....
Decrease		....	....	....	....

Exported from September 1, 1847, *to dates.*

Ports.		To Great Britain.	To France.	To other Foreign Ports.	Total Foreign Ports.	U. States North'n Ports.
New Orleans	Aug. 31	654,083	140,968	154,807	949,858	252,039
Mobile	Aug. 22	224,673	61,212	29,070	314,955	107.638
Savannah	Aug. 24	119,897	5,177	1,411	126,485	93,946
Charleston	Aug. 25	153,090	29,579	16,177	198,846	97,835
Florida	Aug. 12	40,338	....	7,674	48,012	98.360
Virginia & N. Carolina	Aug. 12	68	....	364	432	1.958
Texas	Aug. 29	....	....	772	772	28,289
New York	Aug. 14	108,049	37,992	41,730	187,771	....
Other Ports	Aug. 12	7,420	1,412	2,646	11,478	....
Total Bales		1,307,616	276,340	254,651	1,838,609	680,365
Total to dates, 1846-7		823,210	236,087	161,235	1,220,532	597,009
Increase this year		484,408	40,253	93,416	618,077	83,356
Decrease		....	....	....	....	....

Exported fr. Sept. 1, 1846, to dates in '47.

Ports.		To Great Britain	To France	To other Foreign Ports.	Total Foreign Ports.	U. States Northern Ports.	Stocks on hand and on ship-board. 1848.	1847.
New-Orleans	Aug. 31	385,368	95,719	83,920	565,007	159,501	37,401	23,493
Mobile	Aug. 22	127,518	38,638	19,784	185,940	97,853	28,062	27,607
Savannah	Aug. 24	107,227	11,150	944	119,321	96,089	9,450	5,661
Charleston	Aug, 25	121,662	51,452	17,222	190,336	156,040	11,602	28,478
Florida	Aug. 12	30,896	2,592	3,238	36,726	73,029	2,345	2,285
Virginia & N.Carolina	Aug. 12	152	....	....	152	6,417	700	650
Texas	Aug. 29	....	....	543	543	8,080	747	32
New-York	Aug. 14	49,440	36,111	34,898	120,449	....	56,960	108,013
Other Ports	Aug. 12	947	425	686	2,058	....	....	....
Total Bales		823,210	236,057	161,235	1,220,532	597,009	147,267	196,219
Total to dates, 1846–7		....	....	....	....	....	196,219	....
Increase this year		....	....	....	....	....	....	....
Decrease		....	....	....	....	....	48,952	....

☞ We have taken from New-Orleans the amounts received from Mobile, Florida and Texas. Also, from Charleston, the receipts from Savannah—and Mobile the receipts from Florida.

The exports from Georgetown to New-York are added to the Charleston receipts, and the exports from Darien to Liverpool and New-York are added to the Savannah receipts.

The exports from Mobile and Florida to New-Orleans, and those from Savannah to Charleston, have been deducted from Exports to Northern Ports.

EXPORTS OF COTTON AND TOBACCO, FROM NEW-ORLEANS, FOR TEN YEARS—COMMENCING 1ST SEPTEMBER, AND ENDING 31ST AUGUST.

Cotton—Bales.

Whither Exported.	1847–48.	1846–47.	1845–46.	1844–45.	1843–44.	1842–43.	1841–42.	1840–41.	1839–40.	1838–39.
Liverpool	619817	367810	521953	529675	488817	624681	933990	396010	459943	297793
London	....	48	159	2025	518	61	38	304	113	6
Glasgow & Greenock	27996	10598	17893	36213	21265	35831	15574	20415	26603	7390
Cowes, Falmouth, &c	6270	6102	8134	17975	14893	15939	10740	9188	13560	2459
Cork, Belfast, &c	....	810	14181	....	2182	2926	1108	4393	4549	2139
Havre	123856	90103	146153	112995	107973	159658	161103	157277	206311	110978
Bordeaux	3178	330	2315	2314	1418	2861	2 47	2807	6581	1348
Marseilles	8659	3323	6806	7857	7462	9982	16992	21932	21989	6371
Nantz, Cette and Rouen	5275	1963	4254	1854	3127	8374	2930	1914	5609	2070
Amsterdam	1831	....	2019	1253	1360	2593	584	....	3688	49
Rotterdam & Ghent	304	595	53	2355	512	2173	2907	....	709	....
Bremen	8716	4369	3419	9211	2770	13303	6369	1706	1084	47
Antwerp, &c	14170	2912	7838	7196	8499	17693	5209	2264	7377	....
Hamburg	7091	7466	3585	9123	3156	13664	5678	2983	6846	310
Gottenburg	4887	4376	3877	1630	402	114	286	2793	2994	947
Spain and Gibraltar	32565	17705	1679	821	....	401	78	561	1508	1225
Havana, Mexico, &c.	25468	9376	29800	62083	33151	21177	12818	19072	30594	3380
Genoa, Trieste, &c	45228	30542	52607	27201	19707	17662	10610	16801	25652	4820
China	1490	....	....	2353	....	4303	....	....	....	....
Other foreign ports	13057	6579	8050	2267	1208	1342	174	90	1044	113
New-York	67578	55187	74757	52880	82814	48036	31215	55930	46354	62175
Boston	143989	75546	111666	75357	72400	73891	54062	81626	54042	49497
Providence, R. I.	1566	470	5783	78	211	674	1910	3132	1811	3701
Philadelphia	16213	13582	13690	6784	6919	3253	2846	5721	6195	6371
Baltimore	12328	7288	5507	3640	4698	3278	1703	4832	3045	3450
Portsmouth	5733	3491	2769	1053	4136	....	2658	9025	5099	5369
Other coastwise ports	3132	1437	910	2423	3280	3000	3716	581	6020	7171
Western States	1500	2500	5000	6000	2500	2000	1722	....	....	....
Total	1201897	724508	1054857	984616	895375	1088870	749267	821288	949320	579179

RECAPITULATION. *Cotton—Bales.*

Whither Exported.	1847–48.	1846–47.	1845–46.	1844–45.	1843–44.	1842–43.	1841–42.	1840–41.	1839–40.	1838–39.
Great Britain	654083	385368	562320	585888	527675	679438	421450	430310	504768	309787
France	140968	95719	159528	125020	119980	180875	183272	183931	240490	120767
North of Europe	50056	26297	28841	33035	17907	50882	21207	9836	23742	1466
South of Europe and China	104751	57623	84086	92458	52855	43543	23506	36364	57754	9425
Coastwise	252039	159401	220082	148215	176958	134132	99832	160847	122566	137734
Total	1201897	724508	1054857	984616	895375	1088870	749267	821288	949320	579179

Tobacco—Hhds.

Whither Exported.	1847–48.	1846–47.	1845–46.	1844–45.	1843–44.	1842–43.	1841–42.	1840–41.	1839–40.	1838–39.
Liverpool	8706	3374	8976	4947	8808	6788	6930	5252	3827	4115
London	10008	5173	12888	6475	8291	9851	7212	8732	4320	3725
Glasgow & Greenock	—	—	—	—	—	—	—	—	—	37
Cowes, Falmouth, &c.	1153	1148	2641	1131	5424	10798	6827	6681	992	871
Cork, Belfast, &c.	—	—	—	—	—	—	—	—	—	—
Havre	2201	1159	2215	3514	4846	4648	4037	4224	3655	1455
Bordeaux	128	242	1067	1565	1156	2332	1004	814	1107	—
Marseilles	2625	2096	1006	3934	5102	4665	1933	1774	1844	315
Nantz, Cette and Rouen	—	—	—	—	—	—	—	—	—	—
Amsterdam	—	—	451	50	3775	2700	1138	—	—	224
Rotterdam & Ghent	75	568	1104	1014	917	2933	1882	—	—	—
Bremen	5252	4446	6328	12012	9602	7888	8997	4012	2464	1366
Antwerp, &c.	3371	1652	4294	3862	2178	5657	3690	1219	1090	—
Hamburg	239	403	181	786	2303	1477	3401	1064	1465	—
Gottenburg	945	949	943	909	734	963	916	1559	745	939
Spain and Gibraltar	7692	11795	9843	6749	10781	4496	7204	4142	3843	3400
Havana, Mexico, &c.	617	—	—	903	1601	1063	981	1020	1013	618
Genoa, Trieste, &c.	3388	5046	2375	3001	1556	1760	550	2	44	598
China	—	—	—	—	—	—	—	—	—	—
Other foreign ports	975	1008	298	794	1177	217	516	667	343	315
New-York	9573	5458	4848	6936	6960	10533	1090	7466	8132	8174
Boston	1619	2664	913	4938	2585	3650	2351	3109	2888	2816
Providence, R. I.	—	—	—	—	—	—	—	—	—	—
Philadelphia	1369	2779	1030	2536	1286	2845	936	2126	1963	1291
Baltimore	200	301	427	478	1167	2433	208	517	219	296
Portsmouth	—	—	—	—	—	—	—	—	—	—
Other coastwise ports	228	115	217	2145	1100	2194	225	287	482	225
Western States	—	—	—	—	—	—	—	—	—	—
Total	60364	50376	62045	68679	81249	89891	68958	54667	40436	30780

RECAPITULATION.

Great Britain	19867	9695	24505	12553	22523	27437	20969	20665	9139	8748
France	4954	3497	4288	9013	11104	11645	6974	6812	6606	1776
North of Europe	10475	8018	13301	19051	20175	21618	20252	8040	6005	2654
South of Europe and China	12079	17849	12516	11029	14349	7536	9053	5645	5002	3806
Coastwise	12989	11317	7435	17033	13098	21655	10810	13505	13684	12802
Total	60364	50376	62045	68679	81249	89891	68058	54667	40436	30780

STATEMENT OF COTTON.

Stock on hand 1st September, 1847 ..... Bales		23,493
Arrived since the 25th ultimo	4,920	
Arrived previously	1,208,385	
Total receipts for twelve months	1,213,805	
Addition made from waste and damaged cotton and samples; estimated	2,000	
		1,215,805
		1,239,298
Exported since 25th ultimo	612	
Exported previously	1,201,285	
Total Exports for twelve months		1,201,897
Stock on hand 1st September, 1848 ..... Bales		37401

STATEMENT OF TOBACCO.

Stock on hand 1st September, 1837 ..... Hhds.		22,336
Arrived since 25th ultimo	432	
Arrived previously	55,450	
Total receipts for twelve months		55,882
		78,218
Exported since 25th ultimo	1,585	
Exported previously	58,779	
Total Exports for twelve months	60,364	
City consumption, baling, &c	3,000	
		63,364
Stock on Hand 1st September, 1848 ..... Hhds.		14,854

COMPARATIVE ARRIVALS, EXPORTS AND STOCKS OF COTTON AND TOBACCO AT NEW-ORLEANS, FOR TEN YEARS—FROM 1ST SEPTEMBER, EACH YEAR TO DATE.

Years.	*Cotton—Bales.*			*Tobacco—Hhds.*		
	Arrivals.	Exports.	Stocks.	Arrivals.	Exports.	Stocks.
1847-48	1,213,805	1,201,897	37,401	55,382	60,364	14,851
1846-47	740,669	724,503	23,493	55,588	50,376	22,336
1845-46	1,053,633	1,054,857	6,332	72,896	62,045	17,924
1844-45	979,238	984,616	7,556	71,493	88,679	7,673
1843-44	910,854	895,375	12,934	82,435	18,249	4,850
1842-43	1,089,642	1,088,370	4,700	92,509	89,891	4,873
1841-42	740,155	749,267	4,428	67,555	68,058	2,255
1840-41	822,870	821,208	14,490	53,170	54,667	2,758
1839-40	954,445	949,320	17,867	43,827	40,436	4,409
1838-39	578,514	579,179	10,308	28,153	30,780	1,294

COMPARATIVE RATES OF EXCHANGE ON LONDON, PARIS, AND NEW-YORK, ON THE 1ST OF EACH MONTH, FOR THREE YEARS PAST. [60 day bills.]

	1847-48.			1846-47.			1845-46.		
	Lond. pm.	Paris.	N. York. dis.	Lond. pm.	Paris.	N. York. dis.	Lond. pm.	Paris.	N. York. dis.
September	5¾	5 35	1⅜	8	5 31	1½	9½	5 26	¾
October	6¼	5 40	2¾	8¾	5 32	1⅝	8½	5 31	2
November	5	5 45	3¼	7	5 41	1⅛	8	5 32	2
December	5	5 45	2⅝	5½	5 48	1⅛	6	5 37	2⅜
January	3	5 32	2½	4¾	5 50	2	7	5 36	2½
February	3½	5 32	2½	5	5 45	2½	6⅜	5 37	2¾
March	7¾	5 35	2½	3	5 56	2⅞	6¾	5 37	2⅜
April	7¾	- —	2	2	5 55	2¾	7½	5 85	2
May	4	- —	2¾	5	5 45	1⅜	8¾	3 31	1⅜
June	6½	- —	2¾	4½	5 40	2¾	7¼	5 40	2⅜
July	7½	5 20	1¾	5	5 36	2	6¼	5 42	2½
August	8½	5 17	1	4½	5 38	1⅞	7	5 41	1½

COMPARATIVE PRICES OF MIDDLING TO FAIR COTTON AT NEW-ORLEANS,

On the first of each month during a period of five years—together with the total receipts at New Orleans, and the total crops of the United States.

Months.	1847-48. Cents.	1846-47. Cents.	1845-46. Cents.	1844-45. Cents.	1843-44. Cents.
September	10⅝ a 12	7¼ a 9	7¼ a 8⅜	6 a 7⅛	5⅜ a 8
October	10 a 11	8¾ a 10	6⅞ a 8⅜	5⅝ a 7⅛	7 a 8¾
November	7⅛ a 8⅛	9 a 10½	7 a 8	5½ a 6⅝	6⅜ a 8
December	6½ a 7⅜	9 a 10¼	6½ a 7⅜	4⅜ a 6¼	7⅛ a 8⅜
January	6½ a 7⅜	10 a 11¼	6½ a 7⅜	4⅜ a 6½	8¾ a 10¼
February	6⅜ a 8	11½ a 13	7⅜ a 7⅝	4⅝ a 6½	8⅜ a 10
March	6½ a 7⅛	9½ a 11	6½ a 8¼	5 a 6½	8¼ a 9¾
April	6¼ a 7⅜	10⅜ a 11⅜	6⅜ a 8⅜	5¾ a 7½	7½ a 9¼
May	5 a 6½	10⅜ a 12¼	6½ a 8½	5¾ a 7¼	6¾ a 8¾
June	5½ a 7¼	9⅜ a 11⅜	6½ a 8	5⅛ a 7¼	7 a 8¾
July	5½ a 7¼	9¼ a 10¾	6½ a 8	6⅛ a 7½	6½ a 8¼
August	5⅜ a 7½	10½ a 12	7 a 8½	6¼ a 7⅜	6½ a 8
	Bales.	Bales.	Bales.	Bales.	Bales.
Receipts—New-Orleans	1,188,733	707,324	1,053,633	979,238	910,854
Crop of United States.	2,350,000	1,800,000	2,100,537	2,400,000	2,030,409

COMPARATIVE PRICES OF SUGAR ON THE LEVEE, ON THE 1ST OF EACH MONTH, FOR FIVE YEARS.

Months.	1847-8. Cents.	1846-7. Cents.	1845-6. Cents.	1844-5. Cents.	1843-4. Cents.
September	5 a 7⅜	4½ a 7¼	6 a 6¼	5 a 6⅜	5¼ a 6⅜
October	5 a 7½	6¼ a 9	6 a 7½	5 a 9¾	6 a 7
November	3 a 5½	5½ a 7	5 a 7	4 a 5⅜	5 a 6½
December	2½ a 5	4½ a 7	4 a 6⅛	3 a 5⅜	4¼ a 6¼
January	2 a 5	5 a 7½	4¼ a 6½	2¾ a 5¼	4¾ a 7½
February	2½ a 5¼	5 a 7⅛	4 a 6⅛	2¾ a 5¼	5 a 7¼
March	2¼ a 5	5¼ a 7½	4 a 6¼	3 a 5½	5 a 7¼
April	2¼ a 5	5⅜ a 7½	4 a 6¼	5 a 6⅜	5½ a 7¼
May	1⅜ a 4⅜	5 a 7½	4¼ a 6¼	5 a 6⅜	5½ a 7¼
June	1½ a 4½	5 a 7½	4 a 6¼	4¼ a 6½	4⅜ a 6⅝
July	2½ a 4⅜	5 a 7¼	4 a 6⅜	4½ a 6½	4⅜ a 6⅜
August	2⅜ a 4¼	5¼ a 8	4¼ a 7¼	5½ a 7	4½ a 6⅜

COMPARATIVE PRICES OF MOLASSES ON THE LEVEE, ON THE FIRST OF EACH MONTH, FOR FIVE YEARS.

Months.	1847-8. Cents.	1846-7. Cents.	1845-6. Cents.	1844-5. Cents.	1843-4. Cents.
September	28 a 32	15 a 22	24 a 27	26 a 28	18 a 21
October	28 a 32	20 a 25	21 a 24	24 a 26	23 a 24
November	22½ a 23	26 a 26½	21 a 22	20 a 21	14 a 20½
December	19¼ a 19½	23 a 23½	20 a—	20½ a 20¾	20 a 21
January	17 a 17½	24½ a 25	21 a 21½	16½ a 17½	22½ a 23
February	17 a 19	17 a—	21 a 21½	14½ a 16	22 a 23
March	15 a 21	29 a 29½	22½ a 23	20½ a 21	23 a 24
April	15 a 21	25 a 20	25 a 25½	25 a 26	23 a 25
May	12 a 16	26 a 30	23 a 23½	24 a 27	25 a 26½
June	15 a 20	26 a 30	18 a 22	18 a 27	24 a 25
July	15 a 20	26 a 30	15 a 20	20 a 27	24 a 26
August	15 a 20	28 a 31	15 a 21	26 a 28	25½ a 26½

COMPARATIVE PRICES OF FLOUR, ON THE FIRST OF EACH MONTH, FOR FIVE YEARS.

Months.	1847-8. Dollars.	1846-7. Dollars.	1845-6. Dollars.	1814-5. Dollars.	1843-4. Dollars.
September	4¾ a 6	3½ a 4	3½ a 4½	— a 6	4½ a 4¾
October	4 a 5	4 a 4⅝	3⅝ a 4¼	3⅞ a 4⅝	4 a 4⅝
November	5¼ a 5⅝	5 a 5½	4½ a 5¼	4 a 4¼	4 a 4¼
December	5½ a 6	4¾ a 5⅜	7½ a 8½	4 a 4⅜	4¼ a 4½
January	5½ a 6	4⅜ a 5¼	5¾ a 7	4⅜ a 5¼	4⅜ a 4½
February	4¾ a 5¼	6 a 6½	5 a 6¼	3¾ a 4½	4⅛ a —
March	5 a 5⅜	5½ a 6¼	4⅝ a 5¼	4 a 4⅜	4¼ a 4⅝
April	6¼ a 5⅞	6 a 6¼	4⅛ a 5	4⅞ a 4⅝	4¼ a 4½
May	4¼ a 5¼	5¾ a 6¼	4 a 4⅝	4⅞ a 4½	4¼ a 4¼
June	4¼ a 4¾	6¾ a 7½	3⅜ a 4½	3¾ a 4⅜	3½ a 3¾
July	4¼ a 5	6 a 7	3 a 4	3½ a 4⅜	3½ a 4½
August	4 a 4⅝	4 a 5¼	3¼ a 4	4 a 4¾	4 a 5¼

COMPARATIVE PRICES OF MESS AND PRIME PORK, ON THE FIRST OF EACH MONTH, FOR TWO YEARS.

Months.	1847-8. *Mess.* $	1847-8. *Prime.* $	1846-7. *Mess.* $	1846-7. *Prime.* $
September	15 a—	12½ a12¾	8¾ a 8⅞	6½ a 6¾
October	13½ a13¾	12¼ a12½	8⅝ a 8¾	7 a 7½
November	12⅝ a12½	11¼ a—	9⅜ a 9⅝	8 a 8¼
December	10⅜ a11	8⅝ a 9	8¾ a 9	7½ a—
January	9 a 9½	7 a 7¼	9⅛ a 9½	8¼ a 8¾
February	9¼ a 9¾	7 a 7¼	14 a14½	12 a13
March	9 a 9¼	7 a 7½	15 a15¼	12½ a12¾
April	8¾ a 9	6¾ a 7	15 a15½	12½ a12¾
May	8¼ a 8⅝	6¾ a 7	16 a16¼	12½ a12¾
June	9½ a—	7⅜ a 7½	15⅜ a16¾	12½ a12⅝
July	10 a—	7⅜ a 7¾	16¼ a16½	13¼ a13½
August	10 a10¼	7¼ a 8	16 a—	13 a—

MONTHLY ARRIVALS OF FLATBOATS, FOR THE PAST SEASON.

Months.	Ohio.	Kentucky.	Indiana.	Virginia.	Pennsylvania.	Illinois.	Missouri.	Iowa.	Arkansas.	Alabama.	Tennessee.	Mississippi.	Total.
September	6	—	2	—	—	—	—	—	—	—	—	—	8
October	5	—	3	—	—	—	—	—	—	—	—	—	8
November	45	17	39	—	20	—	—	2	—	—	—	2	125
December	72	22	56	9	—	—	—	—	—	—	10	1	170
January	41	21	82	7	27	8	—	—	—	—	3	—	189
February	39	27	68	2	—	2	—	1	1	—	2	—	142
March	65	19	69	3	—	7	2	2	—	9	6	13	295
April	27	37	172	1	20	23	—	—	1	30	16	16	343
May	15	32	49	1	—	8	—	—	1	18	8	—	132
June	7	15	12	1	—	1	—	8	—	9	11	—	64
July	3	11	3	—	—	2	—	—	—	—	1	—	20
August	1	12	2	—	—	—	—	—	—	—	—	—	15
Total	326	213	657	24	67	51	2	13	3	66	57	32	1511

Also about 600 from various states, with Cattle, Sheep, Hogs, Lumber, &c.—making a total of 2,111.

COMPARATIVE PRICES OF CORN, IN SACKS, ON THE FIRST OF EACH MONTH, FOR FIVE YEARS.

Months.	1847-8. Cts.	1846-7. Cts.	1845-6. Cts.	1844-5. Cts.	1843-4. Cts.
September	50*a*55	36*a*40	40*a*42	43*a*44	42*a*43
October	50*a*75	60*a*65	35*a*38	40*a*—	37*a*40
November	41*a*50	58*a*75	45*a*50	43*a*45	34*a*35
December	45*a*50	60*a*70	80*a*82	34*a*37	43*a*45
January	54*a*60	65*a*67	55*a*63	37*a*38	36*a*38
February	40*a*55	80*a*90	40*a*50	38*a*40	32*a*33
March	36*a*42	75*a*90	47*a*52	40*a*41	35*a*35
April	30*a*38	80*a*95	42*a*50	35*a*36	40*a*42
May	22*a*28	55*a*70	40*a*50	35*a*38	40*a*41
June	32*a*36	65*a*80	35*a*40	28*a*32	33*a*35
July	33*a*39	65*a*75	25*a*32	30*a*34	40*a*43
August	36*a*42	40*a*50	30*a*35	34*a*36	40*a*45

COMPARATIVE RATES OF FREIGHT ON COTTON AND TOBACCO, TO LIVERPOOL, HAVRE, AND NEW-YORK, ON THE FIRST OF EACH MONTH, FOR THE PAST TWO YEARS.

Cotton—Per Pound.

Months.	1847-48. Liverpool.	Havre.	New York.	1846-47. Liverpool.	Havre.	New York.
September	½d.	–ct.	½ct.	½d.	1 1-16	½ct.
October	⅝	1¼	½	½	1 1-16	½
November	⅝	1¼	⅝	⅝	⅞	⅝
December	½	1	½	½	1	½
January	7-16	1	⅜	⅜	1¼	½
February	½	1	½	9-16	1¾	⅝
March	15-32	15c16	½	1	2	1¼
April	9-16	1	½	⅝	1¾	¾
May	9-16	–	⅝	⅝	1¼	¾
June	7-16	–	⅜	9-16	1	¾
July	⅜	–	⅜	⅝	1¼	¾
August	5-16	–	¼	⅝	1¼	⅝

Tobacco—Per Hogshead.

September	40s. 0d.	$—	$5 50	40s. 0d.	—	$3 87½
October	40 —	—	4 75	40 —	—	3 37½
November	40 —	—	6 00	37 6	—	3 87½
December	40 —	9 50	4 75	—	—	3 25
January	40 —	9 50	4 00	57 —	—	7 50
February	39 —	9 50	4 75	57 —	—	6 75
March	40 —	—	5 25	—	—	11 00
April	40 —	—	5 25	—	—	8 00
May	45 —	—	7 50	—	—	11 00
June	36 —	—	4 75	—	—	7 75
July	35 —	9 00	4 00	—	$13 —	8 50
August	30 —	7 00	2 00	50 —	13 —	8 00

IMPORTS OF SPECIE, FOR THREE YEARS, FROM 1ST SEPTEMBER TO 31ST AUGUST.

1847-48	$1,845,808
1846-47	6,630,050
1845-46	1,872,071
1844-45	2,249,133

FOREIGN MERCHANDIZE.—DIRECT IMPORTS OF COFFEE, SUGAR AND SALT, FOR THREE YEARS, FROM 1ST SEPTEMBER TO 21ST AUGUST.

	1847-8.	1846-7.	1845-6.
Coffee, Havana.....bags	8,590	43,931	10,899
Coffee, Rio.....bags	239,371	205,111	215,031
Sugar, Havana.....boxes	12,574	45,889	5,442
Salt, Liverpool.....sacks	300,943	344,852	259,481
Salt, Turk's Island, &c.....bushels	361,184	194,431	110,849

The following Tables are taken from the *Commercial Times*, and are interesting as giving the results for the different months:

RECEIPTS, EXPORTS, VALUE AND STOCKS OF COTTON, AT NEW-ORLEANS, IN MONTHLY PERIODS, FOR 1847-48.—No. 1.

1847-48. Months.	Rec'd. bales.	Exp'ts. bales.	Price. cents.	Val. Ex. $	Stocks. bales.
September	31,838	24,835	11⅜	1,213,802	30,476
October	109,973	40,058	10⅝	1,808,617	100,491
November	103,201	68,955	7¾	2,270,687	134,637
December	133,464	109,529	7¼	3,374,852	158,572
January	183,354	113,450	7¼	3,883,394	228,476
February	172,796	135,255	7½	4,202,799	266,017
March	188,897	137,437	7¾	5,866,677	267,477
April	142,043	162,766	7⅛	4,928,557	215,454
May	78,664	157,124	6	4,006,552	168,494
June	34,263	84,289	6¾	2,418,640	118,268
July	17,211	89,555	6¾	3,530,109	35,724
August	33,504	50,885	6⅝	1,279,757	38,835

EXPORTS AND VALUE OF TOBACCO, WHISKEY AND LEAD.—No. 2.

1847-48. Months.	Tobacco. hhds.	Value. $	Whiskey. bbls.	Value. $	Lead. pigs.	Value. $
September	13,340	615,200	3,251	26,008	37,064	92,760
October	2,324	116,200	3,133	25,064	46,126	115,315
November	1,269	63,450	8,535	68,280	60,654	151,635
December	8,116	405,800	9,469	75,752	47,026	117,565
January	788	39,400	6,530	52,240	18,825	47,062
February	1,602	80,100	6,443	51,544	15,071	37,677
March	2,399	119,950	8,977	71,816	12,123	30,307
April	3,426	171,300	8,433	67,464	74,716	181,785
May	3,284	194,200	6,663	53,304	70,304	175,360
June	1,494	324,700	4,034	32,272	67,429	168,572
July	8,678	433,900	1,583	12,656	95,413	238,532
August	10,095	504,750	1,318	10,544	40,584	101,460

EXPORTS AND VALUE OF SUGAR, MOLASSES, FLOUR AND CORN.—No. 3.

1847-48. Months.	Sugar. hhds.	Value. $	Molasses bbls.	Value. $	Flour. bbls.	Value. $	Corn. sacks.	Value. $
September	442	22,100	50	400	17,820	89,100	24,124	21,711
October	395	19,750	249	1,992	30,637	153,185	13,813	12,431
November	4,548	227,400	11,433	91,464	31,458	157,290	32,973	29,675
December	12,081	604,050	14,348	114,784	60,643	303,215	28,249	25,424
January	13,393	669,650	19,872	158,976	49,506	247,530	78,479	70,631
February	22,168	1,108,460	19,464	155,712	63,762	318,810	182,641	164,376
March	19,088	954,400	13,723	109,784	29,903	145,515	228,387	205,548
April	9,954	477,700	5,113	40,994	71,059	355,295	266,041	239,436
May	5,224	267,200	3,545	28,360	34,050	170,250	146,118	131,506
June	2,006	100,300	779	6,232	27,345	136,725	104,675	94,207
July	1,844	92,200	943	7,544	23,349	116,745	98,241	83,016
August	344	17,200	724	5,792	26,464	152,420	18,686	16,214

EXPORTS OF PORK, BACON, LARD AND BEEF.—No. 4.

1847-48. Months.	Pork. bbls.	Value. $	Bacon. hhds.	Value. $	Lard. kegs.	Value. $	Beef. bbls.	Value. $
September	1,238	12,280	319	15,950	7,624	22,569	196	1,568
October	2,480	24,800	654	32,700	8,865	26,595	103	824
November	6,265	62,650	674	33,700	23,776	71,328	802	6,416
December	33,208	333,080	3,161	158,050	94,430	283,290	7,594	60,752
January	46,671	466,710	5,384	269,200	125,011	465,033	10,025	80,200
February	49,235	492,350	9,115	455,750	295,499	886,497	3,649	29,192
March	75,201	752,010	8,581	429,050	429,467	1,288,389	7,943	62,744
April	53,552	573,510	9,377	225,367	225,367	676,101	6,559	52,472
May	27,398	273,980	4,340	82,722	82,723	248,169	1,882	15,256
June	12,685	126,850	1,489	28,062	28,062	84,186	1,186	9,488
July	6,559	65,590	1,541	21,279	21,279	63,837	1,492	11,936
August	3,781	37,810	577	28,350	13,654	40,962	650	4,800

VALUE OF EXPORTS FROM NEW-ORLEANS.—No. 5.

Summed up, as per Table No. 1—Cotton; No. 2—Tobacco, Whiskey and Lead; No. 3—Sugar, Molasses, Flour and Corn; No 4—Pork, Bacon, Lard and Beef, arranged in monthly periods, from September 1, 1847, to date.

1847-48. Months.	No. 1. $	No. 2. $	No. 3. $	No. 4. $	Total. $
September	1,213 808	733,968	133,311	52,967	2,134,054
October	1,808.617	256.579	187,358	84.919	2,337,473
November	2,270,687	283,365	565,829	174,094	3,293,975
December	3,374,862	599,117	1,047,473	835,172	5,856,624
January	3,483,294	141,502	1,146,787	1,281,133	6,052,816
February	4,302 799	166,321	1,747,298	1,863,789	8,080,207
March	5,866,677	222,073	1,415.257	1,532.193	9 036,190
April	4,928,557	440,549	1,113,235	1,732,943	8,215,284
May	4,006,662	423,264	591,316	824,405	5,845,647
June	2,418,040	525,544	337.464	293,474	3,574,522
July	2,569.109	685.083	299,505	218,413	3,772,115
August	1,279,757	616,754	179,025	111,922	2,187,758

In regard to the great staples, Cotton, Sugar, Tobacco, Western Produce, Hemp and Coffee, we extract at length from the able pen of Mr. Littlefield, of the Prices Current:—

COTTON.—The first arrival of the new crop was on the 9th August—being two days later than the first receipt of the previous year. The quantity was only two bales, and these, as usual with the first receipts, were sold at fancy prices. The whole quantity of the new crop received up to 1st Sept. was 1089 bales, against 140 bales in 1846, 6846 in 1845, and 5720 in 1844; and the sales up to the same date embraced some 350 bales, at 11½ *a* 12½ cents per lb, the quality ranging from Middling Fair to Good Fair. Prices gave way somewhat as the receipts increased, and on the 1st October the range was 10 *a* 11 cents for Middling to Fair, though this yielding of the rates was more attributable to the difficulty of effecting exchange negotiations than to any other cause, as the demand had nearly kept pace with the arrivals. No further material change took place until about the middle of October, when advices of a severe pressure in the English money market gave a downward inclination to prices, which was rapidly accelerated by each succeeding steamer's accounts, bringing intelligence of immense commercial failures in Great Britain and various parts of the Continent, which continued to spread until the whole fabric of European credit was shaken to its foundation. This state of things, so sudden and unlooked for, of course could not fail to operate most adversely upon the Cotton interest, and the rapid depression in Liverpool, acting on the market here, produced a panic, under the influence of which some sales were made on Wednesday, the 17th November, at 5½ *a* 5⅝ cents for

Middling, being a decline of *fifty per cent* in a period of little more than two months. This great depression, however, was but momentary, as buyers having means at command at once came forward, and the market immediately recovered fully one cent per pound from the lowest point. From the middle of November to the latter part of March the market maintained a good degree of steadiness, the purchases for France, Spain, and other parts of the Continent, and for our Northern ports, in addition to those for England, being sufficient to sustain prices within a range of 6½ *a* 7⅛ cents for Middling to Good Middling during the period above mentioned. On Thursday, the 23d March, the startling intelligence was received of a revolution in France and the abdication of Louis Phillippe. This at once put a stop to business, and buyers for France withdrew altogether, not since to re-enter the market to any important extent. The first intelligence, (which was telegraphic) was speedily confirmed, and was immediately followed by accounts of the rapid extension of the revolutionary movement throughout nearly all the countries of Europe, and thus again, and to a wider extent, were European credit and commerce prostrated. These untoward events (in a commercial point of view) at once gave a backward movement to the Cotton market, and a rapid accumulation of obstacles to the progress of business soon depressed prices to a lower point than we have already noted, and to within a fraction of the lowest point of 1843. These obstacles were the entire withdrawal—as already mentioned—of the buyers for France, and also those for most parts of the Continent, and the impossibility, for a time, of negotiating exchange, even on England, to any important extent. Thus, for a period the market was left almost entirely in the hands of Northern buyers, and the absence of competion carried down prices in the early part of May to 4¾ *a* 5¼ cents for Low Middling to Good Middling Louisianas and Mississippis, which was the lowest point of the season. From this extreme depression there has been a gradual recovery, with slight fluctuations, but the amendment has been the result rather of unusually low freights, and a more favorable state of the exchanges than of any very flattering accounts from abroad, though latterly the advices in regard to the state and prospects of trade have been somewhat more encouraging. Tennessee and North Alabama Cottons were, as usual, neglected while the market continued to be abundantly supplied with the low and middling qualities of Louisianas and Mississippis, and most holders, finding it impossible to sell at anything like what might be considered a reasonable price, were compelled to resort to shipments to some extent, in order to relieve themselves of excessive stocks. Not many sales of round lists occurred until about the middle of April, at which time the market opened at 4¾ *a* 5 cents for low to good round average lists, but subsequently fell to 4½ *a* 4¾ cents, at which range the bulk of the sales were made. The market closes with a stock on sale, including all descriptions, estimated at about 10,000 bales, and a total stock on hand, inclusive of all on shipboard not cleared, of 37,401 bales.

The total receipts at this port since 1st September last, *from all sources*, are 1,213,805 bales. This amount includes 25,072 bales received from Mobile, and Florida, and from Texas *by sea*. [That portion of the Texas crop which reaches us via Red River cannot be distinguished from the product of Louisiana.] Deducting from our total receipts the above amount received from Mobile, Florida and Texas, the remainder shows our *receipts proper* to be 1,188,733 bales, or an increase of 431,409 bales as compared with last year. The total exports during the same period are 1,201,897 bales; of which 654,083 bales were shipped to Great Britain, 140,968 to France, 154,807 to the North and South of Europe, Mexico, &c., and 252,039 to United States ports, including 1500 bales to Western States. The increase, as compared with last year, is 268,715 bales to Great Britain, 45,249 to France, 70,837 to the North and South of Europe, &c., and 95,538 to United States ports. The total receipts *at all the Atlantic and Gulf ports*, up to the latest dates received—as shown by our General Cotton Table—are 2,325,180 bales, against 1,767,461 bales to same dates last year; showing an increase of 557,647 bales. This amount, however, it should be understood, does not represent *the total crop of the United States*, as the grand result cannot be attained until full returns up to the 1st September are concentrated at one point. The duty of making up the total crop has for a series of years devolved upon the editors of the *New-York Shipping and Commercial List;* and properly so from the nearer proximity of their point of publication to Europe; and should the forthcoming statement be made up on the usual basis, with the receipts

at Mobile, Florida and the Atlantic ports, between the last dates in our table and the 1st September, the stocks on hand at Macon, Augusta and Hamburgh, and the receipts overland at Philadelphia and Baltimore, it is probable that the total crop of 1847–8, as thus computed, will not vary materially from 2,350,000 bales.

SUGAR.—At the date of our last annual report, the Cane crop, then advancing to maturity, presented most flattering promise: and in our closing remarks under this head we took occasion to state that there was good reason to expect that the product of this important staple of our state would exceed that of any previous year since the introduction of its cultivation. This result has been realized, beyond all question, though we are again unable to present the *exact* amount of the crop, and for the same reason stated last year, viz: that the parties who have heretofore ascertained the product of each plantation annually, and published statements embodying their researches, have not resumed their labors. We have again, therefore, to resort to popular estimate, and this places the crop at 240,000 hhds., exclusive of "cistern bottoms"—being an excess of 100,000 hhds. over last year, and of 40,000 hhds. over any previous year. This, with 4000 hhds. estimated to be on hand at the close of last season, would make a supply of 244,000 hhds. The distribution of the crop, as nearly as can be ascertained, has been as follows, all the items being necessarily estimated, except the exports coastwise, which, according to our table, are equal to about 92,000 hhds., including the shipments out of the state from Attakapas; consumption of the city, and of places in the neighboring states, furnished in small parcels, of which there is no record, and including supplies for the army in Mexico, 15,000 hhds.; taken for refining in the city and state, 10,000; stock now on hand in the state, 12,000; leaving as the quantity taken for the West, 115,000 hhds. This would give the West 45,000 hhds. more of Louisiana sugar than was estimated to be taken last year; but it should be borne in mind that she then took of Cuba sugars equal to about 20,000 hhds—making her actual supply 90,000 hhds. This year the imports from Cuba have been comparatively light, being barely equal to about 5,000 hhds.; and supposing the West to have taken one-half this quantity, the actual increase over last year would be about 20,000 hhds., which is not an improbable amount, considering the low prices, the increase of population, and the extension and improvement of the facilities of transportation. The quantity shipped to the Atlantic ports is equal to about 84,000 hhds., or an increase of 38,500 hhds. over last year.

The first arrival of the new crop was on the 2d of October, five days earlier than the first receipt of the previous year. The quantity was only two hhds., and these were disposed of at 5¼ cents per lb., being badly drained and of dark color. From this date to the close of the month, there were no transactions of importance, the receipts of new crop being moderate, and the quality was so inferior that a great portion was unmerchantable and unsaleable. Prices, consequently, rapidly gave way, and by the first of November the range was 3 *a* 5½ cents for Inferior to Choice—Fair 4¼ *a* 4¾. These continued to be the current rates until the close of the month, when the increasing stock caused prices to give way ½ a cent per lb., the extremes being 2⅝ *a* 5 cents for Inferior to Choice—Fair 3¼ *a* 4. This reduction, however, produced a more active demand, buyers for the North, who had heretofore kept aloof, having come forward, and purchased quite freely. From the close of November to the early part of May there were no very marked changes in prices. Occasional fluctuations of an ⅛ *a* ¼ of a cent took place, the inferior qualities being most affected. The month of May proved a very dull period, and during the latter part of it prices reached their lowest point, the extreme quotations being 1⅛ *a* 4¼ cents for Inferior to Choice—Fair 3⅛ *a* 3½. Since then the rates have recovered somewhat, though with a limited business, and the closing quotations for lots on the Levee are 2¾ *a* 4½ cents for Inferior to Choice—Fair 3⅜ *a* 3⅝. The first sales noticed on plantation took place in the early part of November at 4 *a* 4½ cents per pound Crops round were generally held at 4 cents, but buyers would not come forward at this rate, and several planters resorted to shipments to the North and West, on their own account. By the 1st of January sales were made at 3¼ cents for fair

crops, but subsequently buyers, both on speculation and for shipment, came forward more freely, and considerable sales took place through the months of Jan., Feb., March, &c., generally at 3½ *a* 4 cents for Fair to Prime crops, though some lots brought 4½ cents. In May the lowest point was touched, when some sales were made at 3 cents for fair crops. There is still an unusual quantity remaining in planters' hands, and the whole stock now on hand in the state is estimated at 12,000 hhds. The quantity received at the Levee for sale has been 128,112 hhds. against 82,000 hhds. last year. Respecting the quality of last year's crop, we may remark, that it has presented an unusually low average. This fact we frequently alluded to in the course of the season, attributing it to the low temperature of the grinding season, which was not favorable for the manufacture of sugar. The scarcity of the Prime and Choice qualities, made by the ordinary process, has been matter of complaint throughout the season.

With respect to the growing crop, it seems to be generally conceded that the prospects for a large yield are by no means as flattering as they were at this period last year. The Stubble, or Rattoon Cane, is represented in many sections to be almost an entire failure, and the Plant Cane generally is said to be less near to maturity by some weeks; thus rendering the liability to damage by frost more imminent. It is true, there has been a considerable increase of cultivation, particularly on Red river, some of the upland parishes, and in Attakapas, but it is supposed that other adverse circumstances will more than counterbalance this advantage, and that in no event is the crop likely to reach the amount produced last year. In our neighboring state of Texas the Sugar culture is steadily advancing, and intelligent parties with whom we have conversed, estimate the product of this year at 4,000 hhds. The following table will exhibit the annual product of Louisiana for a series of years, by which it will be seen that the Cane culture is liable to remarkable fluctuations in its results, according to the character of the seasons.

Crop of	1847, 240,000 hhds.	Crop of	1838, 70,000 hhds.
"	1846, 140,000 "	"	1837, 65,000 "
"	1845, 186,650 "	"	1836, 70,000 "
"	1844, 200,000 "	"	1835, 30,000 "
"	1843, 100,000 "	"	1834, 100,000 "
"	1842, 140,000 "	"	1833, 75,000 "
"	1841, 90,000 "	"	1832, 70,000 "
"	1840, 87,000 "	"	1829, 48,000 "
"	1839, 115,000 "	"	1828, 88,000 "

In regard to a market for the coming crop, we are under the impression that the prospects are in favor of a higher average than was realized last year, even with a very full yield, as the requirements of our own country are constantly increasing, while the product of several of the West India Islands, which has heretofore been brought into competition with our own staple, is likely to be reduced to a comparatively unimportant amount by the voluntary abolition of slavery on the part of the home governments, and by servile insurrection. The same causes will reduce the supply for the European markets, and a stable arrangement of European difficulties, which would re-establish confidence and revive commerce, would doubtless tend to rescue this important staple of our state from its present depression, on both sides of the Atlantic

Tobacco.—On the 31st August, 1847, we closed our tables with a stock of Tobacco on hand, including all on shipboard not cleared, of 22,336 hhds., but of this amount there were remaining on sale only some 750 hhds. Prices, which had been gradually advancing for a period of some ten or twelve weeks, were then firm at the following quotations—say for *Lugs* 2 *a* 2¾; *Leaf*, common, 3 *a* 3½, fair 4 *a* 4½, fine 5 *a* 5½, choice 6 *a* 7; *Segar Leaf*, fillets and wrappers, 2½ *a* 12 cents per lb. From 1st September to the beginning of March no change of any great moment occurred, the stock being too small and too poorly assorted to admit of any operations of magnitude. Early in November we had occasion to advance our quotations ¼ *a* ½ a cent, the greatest improvement being in the finer grades, and on the 5th of the same month four hhds. of the *new crop* arrived,

being some four weeks earlier than the first receipt of the preceding year. Even up to the latter part of March, however, owing to the moderate extent of the supply and to the steadiness of the demand, (notwithstanding a further advance of ¼ *a* ½ a cent in prices, our quotations for choice then being 6¼ *a* 8 cents) there had been no accumulation of stock. At this juncture intelligence of the French revolution reached us. There were many conflicting views among dealers as to the probable course of the new government of France with regard to the Tobacco monopoly, and as to the effect which it would be likely to have upon the trade; but the immediate consequence of the news, and of this diversity of opinion, was a partial suspension of operations. The arrivals for some weeks continued moderate, and as factors evinced no disposition to press their stocks on the market, the few sales made, although at prices rather in favor of the buyer, showed no marked decline. Toward the end of April, however, the receipts had commenced to be more liberal, and during the ensuing three weeks the arrivals embraced about 10,000 hhds., while the sales reported in the same time amounted to but 1500 hhds., though it was stated that probably as much more had been disposed of privately. This state of things gave buyers greatly the advantage, and when, on the 20th May we resumed our quotations, which we had, owing to the unsettled and uncertain state of the market, been compelled to omit for several weeks, they were, for *Lugs*, 2 *a* 2½; *Leaf*, inferior, 2¾ *a* 3, common, 3¼ *a* 3¾, fair 4 *a* 4¼, good to choice 4½ *a* 5½ cents; being a decline of ¾ *a* 1 cent on the common qualities, and of 1½ *a* 2½ cents on the finer grades. At these reduced rates there were sold, up to the first of July, about 7000 hhds. At this time the quantity on sale exceeded 11,000 hhds., and as buyers appeared but little inclined to operate largely, unless at a further reduction, while sellers were naturally more disposed to close off their stocks on the approach of the sickly season, prices again receded ¼ *a* ½ a cent., the sales of the month reaching 6000 hhds. During the last month the demand has been fair for the period of the season, and the transactions have amounted to some 4000 hhds., though a great portion consisted of the description known as "Yellow Banks," which has been most sought after. Prices have about recovered what they lost in July, and owing to the superior character of most that has been sold during the past month, our figures stand higher than they did in June, our present quotations being, for *Lugs*, factory, 1½ *a* 1¾, planter's, do., 2 *a* 2¾; *Leaf*, inferior to common, 3 *a* 3¾; fair to fine, 4 *a* 5, choice and selections, 5¼ *a* 6 cents per lb. The amount now remaining in factors' hands is estimated at about 5000 hhds., a considerable portion of which is held at rates decidedly above our closing quotations.

In our last annual report we observed that the course of the Tobacco market during the preceding year had varied greatly from the general anticipation. The same remark applies equally to its course for the past season; but in 1846–7 it was much more favorable than there was any reason to suppose it would be; while during the commercial year just closed, well-based calculations have been completely disappointed and overthrown by a train of circumstances which could not be foreseen or provided against. The revolution in France, already referred to, gave a severe blow to the market before any considerable portion of the crop was disposed of, and the hostilities between Denmark and Holstein, and the consequent blockade of some of the German ports caused an abatement of demand to some extent from that quarter.

It was well understood last fall that the crop was a short one. It is true, that our receipts, as compared with those of last year, show little or no deficiency; but of the 15,000 hhds. received from 1st September to 1st March, not more than 2000 were of the new crop; and deducting the remaining 13,000 from the total arrivals, the receipts of the past crop amount thus far to only about 42,000 hhds. Of the whole quantity received during the past twelve months, there have been inspected at the State Warehouses 34,623 hhds., of which 4746 hhds. were Mason county. For full information in regard to comparative receipts, exports, stocks, &c., we refer to our tables.

As regards the extent and character of the growing crop, we would merely state at this early period, that there are advices in town from many sections, announcing serious injury to it, both in quantity and quality—owing in the first place to drought at the time of planting, (though this was confined to particular sections of considerable extent) and more recently to excessive rains throughout the entire Tobacco-growing region. On his head, however, we shall, no doubt,

be able to furnish our readers with more definite information some few weeks hence, when we shall take occasion to recur to the subject.

WESTERN PRODUCE.—Our records show an immense falling off in the operations in the leading articles under this head during the past year, as compared with the season ending the 1st September last. It will, of course, be remembered by all that a famine in Europe had produced an extraordinary demand for breadstuffs, and the consequent elevation in prices brought forth from our well-filled granaries not only the abundant product of the then current year, but also the hoarded surplus of previous seasons. It was thus that our receipts here, as well as at the other shipping ports of the country, suddenly rose to double those of the year immediately preceding, and to an amount many fold greater than those of any previous year. The very thorough manner in which the West gave up her supplies in 1846–7, and the comparatively limited foreign demand during the past season, have carried back our receipts of Breadstuffs to *less than one-half* what they were last year. Thus our arrivals of *Flour* are 706,958 barrels, against 1,617,675 barrels last year; of *Indian Corn*, equal to 3,600,000 bushels, against 7,065,000 bushels last year; of *Wheat*, equal to 300,000 bushels against 1,670,000 last year; of *Corn Meal*, 47,543 barrels, against 88,159 barrels last year. The Exports show a corresponding reduction. The total Exports of *Flour* amount to 472,519 barrels, against 1,319,506 barrels last year. Of this quantity 15,416 barrels have been sent to Great Britain and Ireland, 88,676 to the West Indies, &c., and the remainder to coastwise ports. Of *Indian Corn*, the total Exports are equal to 3,059,000 bushels, against 6,303,000 bushels last year. Of this quantity, 1,360,000 bushels have been shipped to Great Britain and Ireland, 173,000 to the West Indies, &c., and the remainder to coastwise ports. Of *Wheat*, there have been exported to foreign ports barely 35,000 bushels—nearly all of which was to Great Britain—the bulk of the receipts being shipped to the North, and a portion consumed in our city mills. According to a table published in the New-York Shipping and Commercial List, the comparative exports of Breadstuffs from the various ports of the United States to Great Britain and Ireland, from September 1st to August 1st in the two past years, stood as follows:

		1846–7.	1847–8.
Flour	bbls.	2,992,319	178,782
Corn Meal	bbls.	826,536	102,318
Wheat	bushels.	3,464,400	219,917
Corn	bushels	15,800,917	4,134,912
Rye	bushels.	84,333	none.
Oats	bushels.	426,881	none.
Barley	bushels.	303,324	none.

The speculative mania of the previous year having subsided, there has of course been more steadiness in prices, and the following figures exhibit the extreme fluctuations of the season in this market:—Flour—Ohio to the best St. Louis City Mills—lowest point August, $3 87½ *a* $4 25; highest point January, $5 50 *a* $6 per bbl. Indian Corn—lowest point May, 23 *a* 30 cents; highest point December, 58 *a* 65 cents per bushel, in sacks. Wheat—lowest point Aug., 62½ *a* 75; highest point November, $1 12½ per bushel, in barrels and sacks. It is understood that the crops throughout the country generally are abundant; and as the foreign demand is scarcely likely to exceed that of last year, there seems a strong probability that prices for the coming year will rule at a rather low average. The trade in *Provisions*, particularly Pork and Lard, has been more extensive than last year, there having been a considerable increase in the supplies, as will be seen by reference to our tables. Our space will not permit us to follow these articles in their various fluctuations, and we must therefore content ourselves with noting the extreme rates of the season, which have been as follows:—*Pork*, Mess, highest point September 11th, $14 75 *a* $15; lowest point April 26th, $8 *a* $8 12½; Prime, highest point September 11th, $12 50 *a* $12 75; lowest point December 22d, $6 50 *a* $7 per bbl. *Lard*, highest point September 18th, 11 *a* 15; lowest point April 26th, 3½ *a* 5¾ cents per lb. The total Exports (all packages being reduced to kegs,) are equal to 1,395,496 kegs, against 907,977 kegs last year; and the Exports, foreign, are 546,010 kegs, against 437,716 kegs last year; or an increase of 108,294 kegs. Other articles, of more

or less importance, claim some notice under this head, but our limited space admonishes us that we must pass on to a review of other leading commodities.

HEMP.—In our last annual report we stated that our information respecting the then growing crop led us to the conclusion that the supply would be much less than during the previous season, as the crop in Kentucky did not promise well, and there was likely to be a material falling off in the arrivals from Missouri, owing to the fact that a considerable portion of the receipts of last year was made up of parts of several crops which had been detained from market by low waters, &c., in previous seasons. The result shows a much larger deficiency than we anticipated, the receipts since 1st September last to this date being only 21,584 bales, against 60,238 bales last year; or a decrease of 38,654 bales. There was quite a large stock remaining over at the opening of the season, which had been detained by the high rates of freight, and thus the exports of the past year considerably exceed the receipts, being 27,240 bales. Of this quantity, all has been sent to the Northern ports, except 224 bales to London and 14 bales to Bordeaux. The great deficiency in the receipts has of course had its influence upon prices, and the first sale of good dew-rotted was in the early part of September, at $120 per ton. This price was claimed for all the lots arriving for a period of several months, but finding no purchasers they were sent forward. Indeed very few sales have been made here this season, owing to higher limits than buyers were willing to pay, and nearly the whole receipts have been forwarded to the North on account of the Western dealers. The highest point of the market was that above noticed, and the lowest about the middle of May, when a lot of about 300 bales dew-rotted was sold at $82 50 per ton. The comparative receipts, and average prices, for a series of years, will be shown by the following table:

	Bales.	Per ton.
1842--43	14,873	$80 00
1843--44	38,062	$66 00
1844--45	46,274	$60 00
1845--46	30,980	$60 00
1846--47	60,238	$98 00
1847--48	21,584	$115 00

With regard to the coming season's supply, we observe that the crops of the West are said not to promise well, particularly in Kentucky; and as the latter state does not produce enough for her bagging and rope manufactories, but draws a considerable portion of her supplies for this purpose from Missouri, there does not seem likely to be any considerable increase in the quantity to come forward for the Atlantic markets.

COFFEE.—This article continues to maintain a leading position among the foreign productions that seek our market, though the business of the season has not reached an extent equal to that of last year, in the aggregate, while prices at the same time have ruled lower. The following statement shows the imports, stocks, &c.:

Estimated stock out of grocers' hands on 1st September, 1847, of all kinds	bags	15,000
Imports direct from Rio de Janeiro	239,371	
Cuba, Laguayra, St. Domingo, &c	8,590	
		247,961
Received coastwise for sale (estimated)		20,000
Making a supply of		282,961

Against a supply of 312,042 bags last year, or a decrease of 29,081 bags. There is an increase of 34,260 bags in the receipts from Rio, as compared with last year, while from Cuba, &c., there is a decrease of 34,341 bags, and a further decrease in the estimated receipts coastwise for sale of 21,000 bags. The present stock out of grocers' hands is estimated at about 5,500 bags—viz., of Rio 5,000, and of other descriptions, 500; showing that the quantity taken for the consumption of the West and South has been 277,500 bags against 297,000 bags last year; a

decrease of 19,500 bags. This falling off cannot be attributable to an actual reduction in the consumption, which is unquestionably on the increase, but it is to be accounted for by the fact that dealers have drawn a larger portion of their supplies than usual from the Atlantic markets, besides having a considerable surplus of last year's purchases. The first direct import of the season, from Rio, was on the 2d October, being nearly two months earlier than the first cargo arrival last year. Some sales were made at 7⅞ *a* 7¾ cents, but the market soon settled down to a range of 7 *a* 7⅛ cents, according to quality, and continued so for some time. Early in Dec. the prices gave way to 6¼ *a* 7 cents, but about the middle of January the market rallied a little, under the supposition that the difficulty of disposing of Sterling Exchange in Rio would arrest further shipments to this country; but the advance was only temporary, the supply on the market being rather heavy. In March, the stock being much reduced, prices again recovered to 6¾ *a* 7¼ cents, but the outside figures were current only a short period, the highest rate for some months subsequently being 7 cents for prime. The closing rates, are for ordinary to prime Rio 6 *a* 6½, Cuba 6¾ *a* 7 cents per lb. The last direct import from Rio was on the 19th July, and the supplies since then have come from the North. In another part of our columns will be found a table, showing the direct imports from Rio, Cuba, &c. for a period of three years.

COMPARATIVE RECEIPTS—NEW-YORK CANALS, AND NEW-ORLEANS FROM WEST.

	Flour, bbls.		Wheat.		Corn, bush.	
	N. York.	N. Orleans.	N. York. bush.	N. Orleans. bbls. & sks.	N. York.	N. Orleans
1836	928,116	—	824,855	—	1,593	
1837	914,171	—	592,037	—	24,768	
1838	1,079,001	—	551,589	—	32,049	
1839	992,603	434,984	582,752	17,280	8,659	
1840	1,833,959	482,523	1,559,859	63,015	119,762	
1841	1,647,492	496,194	781,055	2,621	366,111	
1842	1,577,555	439,688	928,347	134,868	186,016	
1843	2,073,708	521,175	827,346	118,248	17,861	
1844	2,222,204	502,507	1,262,249	86,014	35,803	
1845	2,517,250	533,312	1,620,033	64,759	1,610,149	
1846	3,063,441	837,985	2,950,636	403,786	6,053,845	
1847	3,952,972	1,617,675	4,143,830	833,649	—	

See our Tables.

	Pork, N. York.	Beef, N. York.	Butter & Lard, N. York.	Cheese, N. York.
	bbls.	bbls.	lbs.	lbs.
1836	37,968	23,935	8,582,662	14,006,972
1837	37,536	13,883	7,042,627	15,564,826
1838	19,768	6,989	8,616,710	13,821,571
1839	41,988	12,650	8,298,400	14,539,588
1840	59,711	29,839	13,708,000	18,820,000
1841	115,150	18,113	16,157,653	14,171,081
1842	79,235	21,437	19,182,930	19,004,613
1843	63,777	47,465	24,215,700	24,336,260
1844	63,646	50,000	22,596,300	26,674,500
1845	45,153	67,699	24,890,255	27,542,861
1846	80,093	45,600	28,198,658	35,560,118
1847	76,179	71,266	27,072,000	40,844,000

EXPORTS—NEW-ORLEANS, YEAR ENDING 30TH JUNE, 1848.

Product of the United States.

In American vessels to	3d Quarter, 1847.	4th Quarter, 1847.	1st Quarter, 1848.	2d Quarter, 1848
Foreign countries	$8,297,322	$5,731,775	$7,372,330	$6,240,142
" Foreign " " "	911,323	1,163,105	5,358,774	4,273,951
" Coastwise	3,745,771	5,627,935	11,317,460	7,142,435
	12,954,416	12,522,815	24,048,564	17,656,528

Total 4 Quarters—Export $67,182,323

	3d Quarter, 1847.	4th Quarter, 1847.	1st Quarter, 1848.	2d Quarter, 1848.
Tonnage *Entered.*				
Am. vessels for For. ports..	3,261,368	6,318,636	5,820,885	4,550,274
For. " " " "...	549,545	4,294,964	8,393,384	2,919,943
Coastwise.....	7,936,368	13,870,825	16,070,354	15,408,066
Tonnage *Cleared.*				
Am. vessels for For. ports.	7,710,648	5,465,362	7,943,460	7,667,704
For. " " " "..	1,189,162	1,572,371	6,698,983	5,408,353
Coastwise.....	7,446,559	11,110,117	17,392,705	15,996,053
Total.....tons	28,093,650	43,284,275	62,820,771	51,960,393

1847-48....Grand Total, Out and In Tonnage.....tons 186,146,454
1846-47....Grand Total, " " " " (Excluding coastwise) " 84,341,400
1846-47....Grand Total, New-York, (" ") " 161,241,300
1846-47....Foreign Export, New-York.....$49,844,368
1846-47.... " " New-Orleans..... 41,051,633
1848.....Grand Total Receipts at New-Orleans from the interior, chiefly by the Mississippi river..... 779,79,151
1847.....Grand Total Receipts at the Hudson River, New-York, by all the canals. What portion of them are carried on the Railroad to Boston we cannot learn.. } 73,094,414

NEW-YORK.

The imports at New-York for three years past, from January 1st to August 31st, are as follows:—

Articles.	1848.	1847.	1846.
Brandy, hf. pipes	5,092	7,292	3,073
Do. qr. casks and bbls	5,148	6,262	2,719
Coal, tons	25,261	29,162	16,890
Cocoa, bags	4,718	5,869	3,747
Cochineal, ceroons	485	11	448
Coffee, bags	302,623	329,369	257,373
Cotton, bales	255,139	226,717	237,727
Duck, bales	560	794	269
Do. pieces	6,986	1,896	554
E. Ware, crates and casks	20,203	18,573	20,069
Figs, drums, &c.	26,923	92,715	11,091
Gin, pipes	2,675	1,765	1,657
Hemp, bales	35,357	37,421	31,414
Do. tons	138	107	34
Hides, bales	675	735	605
Do. No	744,515	575,126	116,538
Iron, bar, tons	18,603	17,422	10,746
Do. pig, tons	38,226	23,807	11,073
Do. sheet, hoop. &c., bdls	120,459	105,608	26,111
Indigo, cases	1,152	844	776
Do. ceroons	1,066	513	911
Lead, pigs	266,523	968,886	182,542
Molasses, hhds	65,731	65,111	60,374
Do. tierces	6,027	5,218	4,670
Do. bbls	34,898	15,092	18,330
Olive Oil, casks	225	621	93
Do. boxes and bskts.	33,732	19,291	7,356

Articles.	1848.	1847.	1846.
Pepper, bags	25,705	10,032	5,656
Pimento, bags	10,240	5,652	6,389
Rags, bales	16,307	7,614	8,388
Raisins, casks	3,956	3,759	2,085
Do. boxes	154,840	57,543	67,839
Do. drums	190	1,184	91,90
Rice, tierces	20,873	24,082	20,607
Rum, puncheons	1,982	1,689	1,109
Salt, bushels	1,067,909	1,209,931	652,000
Saltpetre, bags	10,512	11,738	6,213
Sugar, hhds	88,874	70,714	59,312
Do. tierces	1,906	481	548
Do. bbls	13,024	15,140	5,460
Do. boxes	80,938	113,165	55,620
Do. bags	83,107	13,007	32,230
Tin, banca, &c., slabs	35,506	18,950	16,163
Do. plates, bxs	113,067	74,716	137,685
Tobacco, hhds	9,850	6,892	13,587
Do. bales and ceroons	14,453	10,555	11,270
Wines, butts & pipes	668	632	797
Do. hhds. and half pipes	8,000	5,225	8,095
Do. qr. casks	27,166	13,708	25,618
Do. bbls	3,197	1,581	70,717
Do. boxes	19,025	14,956	9,753
Wool, bales	9,192	5,883	12,429

[*New-York Shipping List.*

STATISTICS OF LOUISIANA SUGAR.

We have made up some statistics from the tables of Mr. Champomier, which were published for several years, but are now discontinued. This gentleman collected his facts by correspondence and personal attendence, and though he may have been led into many errors, they are altogether too unimportant to affect the general results. Nothing so reliable can be had from any other source. We have several times attempted to continue Mr. Champomier's plan, and may yet do so, though we understand Mr. Burke, of the Patent Office, contemplates something of the same kind.

LOUISIANA SUGAR STATISTICS.

Parishes.	Sugar Houses, No.		Product, hhds.		Average product Sugar House.		Planters, No.
	1844-5.	1845-6.	1844-5.	1845-6.	1844-5.	1845-6.	1845-6.
Pointe Coupee	5	40	888	1,206	173	300	51
West Baton Rouge	19	52	4,247	4,961	230	95	78
East Baton Rouge	18	35	4,474	4,222	240	120	54
Ibervill	69	116	16,463	15,624	230	134	194
Ascension	48	63	19,223	16,906	400	264	96
St. James	67	81	21,519	17,515	310	216	197
St. John	55	61	13,575	9,909	230	165	145
St. Charles	37	39	12,532	10,650	320	273	94
Jefferson	24	29	11,218	7,541	460	260	49
St. Bernard & Orleans	23	26	6,941	5,670	260	210	47
Plaquemines	36	45	14,761	11,321	400	251	77
Assumption	62	137	11,990	12,076	175	88	206
Lafourche	49	98	14,205	11,116	280	113	164
Terrebonne	42	78	12,661	12,080	290	164	104
St. Mary	147	179	18,795	24,722	120	132	283
St. Martin	36	69	4,419	5,246	120	76	115
Lafayette	4	7	372	365	90	52	11
Vermillion	13	19	862	1,176	65	61	33
St. Landry	8	26	1,179	1,352	130	52	37
Red River Parishes of Avoyelles, Rapides Catahoula, Concordia		27	—	—	—	—	29
Calcassieu	—	11	—	119	—	10	11
West Feliciana	—	2	—	—	—	—	4
Cistern Sugar	—	—	—	9,876	—	—	—
Total	764	1,240	191,324	186,650	250	150	2,077

PRODUCT SUGAR HOUSES.

	1845.	1846.
Producing 1000 hogsheads and over,	8	—
" 900 " "	3	2
" 800 " "	8	1
" 700 " "	20	4
" 600 " "	20	18
" 500 " "	48	20
" 400 " "	45	46
" 300 " "	99	98
" 200 " "	104	154
" under 200 " "	407	897

PLANTERS PRCDUCING OVER 1000 HOGSHEADS.*

H. McCall	1019
D. F. Kenner	1156
Brengiers	1170
Valcum Aime	1152
Henry Doyle	1539
Garcia & Co	1015
L. Labranche	1016
L. Millandon, (3 estates)	2035
Preston, (2 estates)	2324

* For every hogshead of sugar one barrel of molasses is produced.

Thus nine planters produced as much as the 81 planters of St. Martins, Lafayette, St. Landry, Vermillion and West Baton Rouge, and one-sixteenth of the whole crop.

About 160 planters produced one-half of the whole crop.

It is to be observed, however, that many planters have iutesests in other estates than their own, and others have estates in different parishes. Several have often an interest in the same estate.

Adding the cistern bottom sugars, used by the refiners, the crop of 1844-5 exceeded 200,000 hogsheads. The number of steam sugar mills that year was 408, the rest being horse. Whole number of planters then, 900.

The estimate of 1845-6 includes the cistern bottoms. Mr. Champomier estimated there would be in operation in 1847, from returns made to him, 1240 sugar houses, owned by 2077 proprietors. They appear in our table of 1846 *as in progress;* 204 expecting to work in '46 and '47, and 81 in '47 '48. From the stimulant given to the sugar culture by the high prices of 1847, and the very low rates of cotton in 1848, the new bayou and river lands taken into cultivation, and especially the region on the Red River, the whole number of sugar mills in Louisiana in 1849–50, will scarcely fall short of 1,500. About one-half of the mills are by horse power, though steam is being rapidly substituted.

If we consider the whole territory of Louisiana, and compare the country south of Rapides Parish, excluding the Florida parishes, we shall find about one-half of the state adapted to the sugar culture. Probably not one-twentieth is now cultivated in sugar. There are many parishes in which it is not planted at all. 120,000 out of 200,000 hogsheads, which the state produces, are made by the parishes on the river above and below the city. The crops of Red River parishes, the present year, we have not learned; but from 30 houses may estimate 7,000 hogsheads, perhaps 10,000.

NEW ORLEANS MECHANICS.

SIR:

As the object of your Review is to foster the talent and resources of the South-West, you will permit me to direct your attention to a paragraph, (copied from the Baltimore Sun,) which has gone the round of the city press without comment. It states that a new Dredging Machine, manufactured PER ORDER of the Second Municipality, has just been completed, etc., etc.

Could not this machinery have been made in this city or state? I will answer this question by stating, that there are within the bounds of the Second Municipality, no less than *four* shops, capable of making this machinery, and I think that it was in bad taste, and also impolitic, for the aldermen to send for it to Baltimore, or any other place, thereby intimating that our mechanics were not competent to make such *ordinary machinery* as that used in dredging operations, when it is well-known that machinery, requiring the greatest accuracy and finish, is made in this city.

The Board of Aldermen must know that the past season has been a dull one, particularly to those engaged in making machinery, and how much better would it have been for the money expended on this dredging machine to have been kept in this city, giving employment to our own workshops, and thereby indirectly replenishing the treasury from whence the money emanated. Being a resident of the city, and feeling some pride in its credit, I could not let this matter pass in silence, as I have frequently censured individuals for getting work done abroad at the expense of those persons among whom they obtain their own livelihood.*

Respectfully, yours,
A MECHANIC.

* We are willing that a mechanic should be heard, though his complaints against the liberal public spirit of the Second Municipality is hardly deserved. We know their disposition to sustain native arts and manufactures.—[EDITOR.

EDITOR'S ARM-CHAIR.

Since our last issue we have received—

1. Nos. 25, 26, 27, *Chambers' Miscellany*, which requires three more numbers to be completed. This is one of the most popular, useful, and interesting productions of the age, and as such should commend itself to the widest circulation. One of the numbers before us contains the *Life of a Negro Slave*, in which it is intended to hold up the "horrors" of negro slavery in our Southern States. The picture, as usual, is *false*; though we will not allow the work on that account to be prejudiced in our mind. Boston: Gould, Kendall & Lincoln. New-Orleans: J. C. Morgan.

2. *Blackwood's Magazine* for September. We received from the publishers, through J. C. Morgan, agent for New-Orleans, the last issue of Blackwood. The contents are as usual sprightly and instructive The low price at which this work is published, should bring it within reach of all.

3. *Southern Quaterly Review*: Charleston, S. C.
North American Review: Boston, Mass.

These works come to us in about the same size and same appearance, but represent the tones, feelings, and sentiments of sections far remote, and in many respects, antagonistic. It would be invidious to characterize either as the most able, though our prejudices are naturally in favor of the Southern work. Contents, *North American*: "Williams' China;" "Campbell and Stevens' Virginia and Georgia;" "Life of Tyndale;" "Novels of the Season;" "Mills' Political Economy;" "Lord Sidmouth;" "Protestantism in France;" "Prose Writers of Germany;" "Scottish Peasants, &c." Contents, *Southern Quaterly:* "Progress Political Economy;" "South Carolina in the Revolution;" "Carlyle's Works;" "Fugitive Poetry of America;" "Danger and Safety of the Republic;" "Religious Instruction of Slaves;" "Army in Texas;" "The French Republic;" "Marlborough," &c.

4. *Southern Literary Messenger*, Richmond, Va.; *Western Journal*, St. Louis; *Plough, Loom and Anvil*, Philadelphia; *Banker's Magazine*, Baltimore. These four monthly periodicals are regularly upon our table. The "Messenger" is always attractive for its literary contents. Mr. Skinner is giving a wide popularity to his "Plough, &c.," and the present number richly deserves that favor. The "Western Journal" contains six original articles, and is printed in handsome style. Contents "Banker's Magazine," October, 1848:—

1. Transfers of Bank Stocks.
2. United States' Stocks.
3. Bank Virginia. 4. Bank of Albany.
5. Bank Statistics. 7. Bank Items.
6. Commercial Crises of 1847 in Britain.
8. Exchanges, &c., &c., &c.

Complete bound setts of this work may be obtained from the Publisher, which are very desirable.

Emory's New Mexico and California, printed by order of Congress. Abert's *Report on New Mexico*, by authority of Congress. These two works are in hand for elaborate review in our next numbers. We are indebted to the kindness of Lieut. Abert and Hon. Henry Johnson for copies.